



3D environment lighting

SUNNY AFTERNOON - TWILIGHT - MOONLIGHT - ELECTRICAL -
CANDLELIGHT - UNDERWATER

3D environment lighting

'3D Environment Lighting' is a 6-part tutorial series. Over the course of the six chapters, this series will be detailing techniques on lighting an environment under a number of different conditions. Each chapter we will cover a step-by-step guide to setting up lights, aimed at portraying the scene in a specific manner. The various chapters will be tailored to specific software packages and each will aim to show a comprehensive and effective way of lighting an interior of a ship that includes both natural and artificial light. These will include a sunny afternoon, sunset, moonlight, electric light, candle light, and finally a submerged submarine light. The schedule is as follows:

Chapter 01

NATURAL EXTERIOR LIGHTING
SUNNY AFTERNOON

Chapter 02

NATURAL EXTERIOR LIGHTING
TWILIGHT

Chapter 03

NATURAL EXTERIOR LIGHTING
MOONLIGHT

Chapter 04

ARTIFICIAL INTERIOR LIGHTING
ELECTRICAL

Chapter 05

ARTIFICIAL INTERIOR LIGHTING
CANDLELIGHT

Chapter 06

ARTIFICIAL INTERIOR LIGHTING
UNDERWATER





Chapter 01

NATURAL EXTERIOR LIGHTING
SUNNY AFTERNOON



NATURAL EXTERIOR LIGHTING SUNNY AFTERNOON

Welcome to this new series of tutorials which we will follow over the next six chapters. These tutorials are all devoted to lighting. In fact, we will learn how to illuminate a scene under different environmental conditions. As you already know, when illuminating a realistic scene, the use of the Global Illumination is required. Fortunately, Cinema 4D offers a solution which is pretty quick and simple to obtain renders of a high quality - you just have to be patient though, because Global Illumination means longer render times! In this first tutorial we are going to illuminate a ship's cabin using natural exterior light - the Sun. The environmental condition for this will be sunlight flooding through windows on a sunny afternoon.

1. First of all, open the scene (download can be found at the end of this tutorial; click on the Free Resources logo) and examine it. You can see that in the cabin there is an opening in the ceiling. The Sunlight will illuminate the room by flooding through this opening in the ceiling. Since we are using Global Illumination, we have to turn off the Auto Light (Render Settings > Options > Auto Light: Off). I then suggest you also disable the Anti-aliasing (AA) parameters (Render Settings > Anti-aliasing: None) as this will allow you to save time in the rendering phase. We will enable the AA for our final render (Fig01).

2. Before inserting the sunlight, add a Sky object in the scene, and then assign to it a material that has a Gradient as a texture in the Illumination Channel (Fig02). This Sky object will generate the Global Illumination.

3. This one Sky object cannot represent the illumination system. In fact, Fig03 shows how dark the room is with this. Since the environmental condition here is a sunny afternoon, we need a light source that will simulate the Sun. You can see from Fig03 that

Fig 01

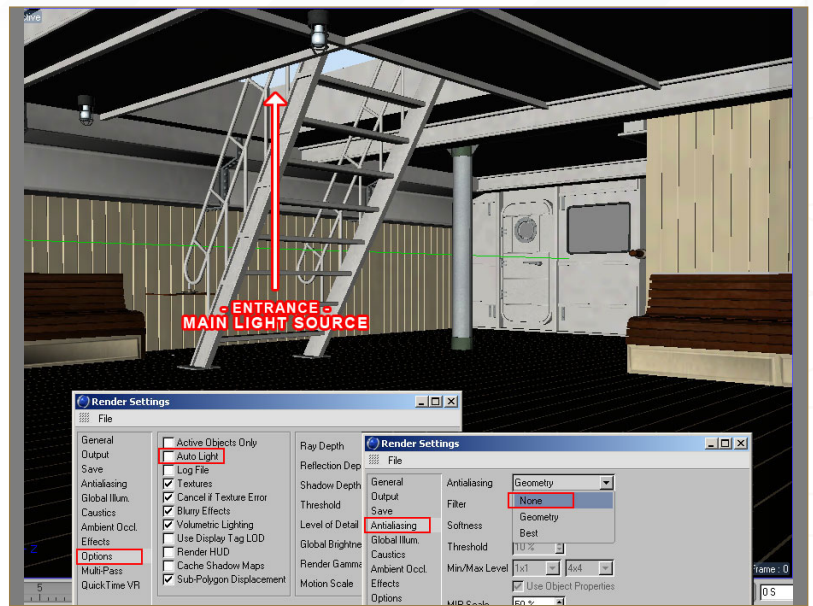


Fig 02

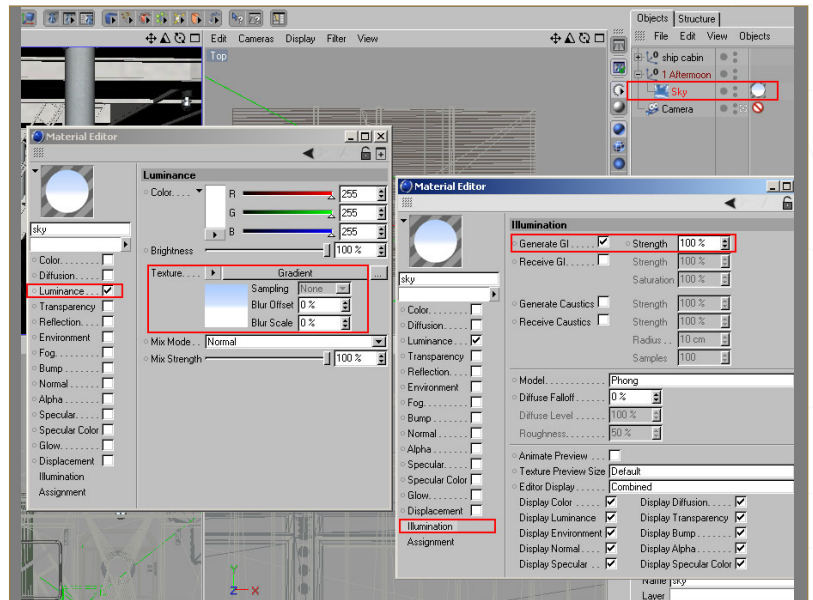
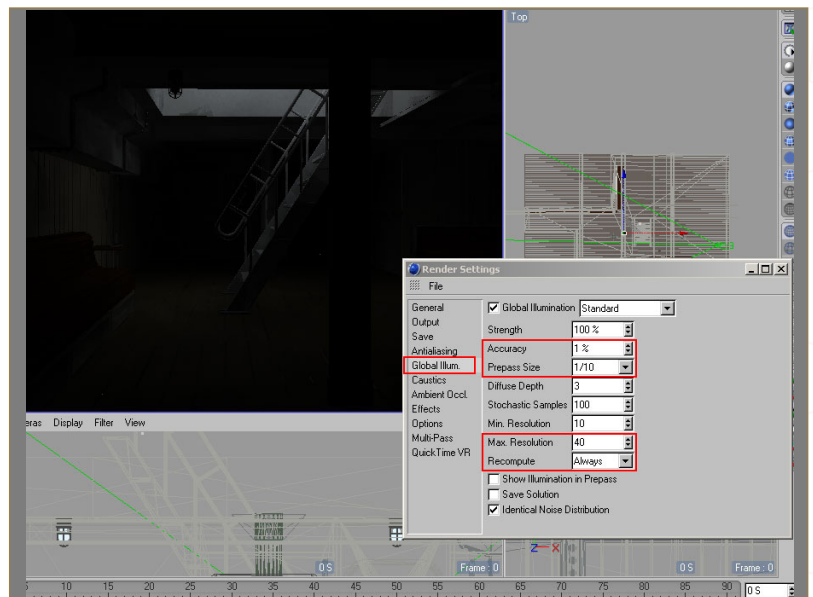


Fig 03



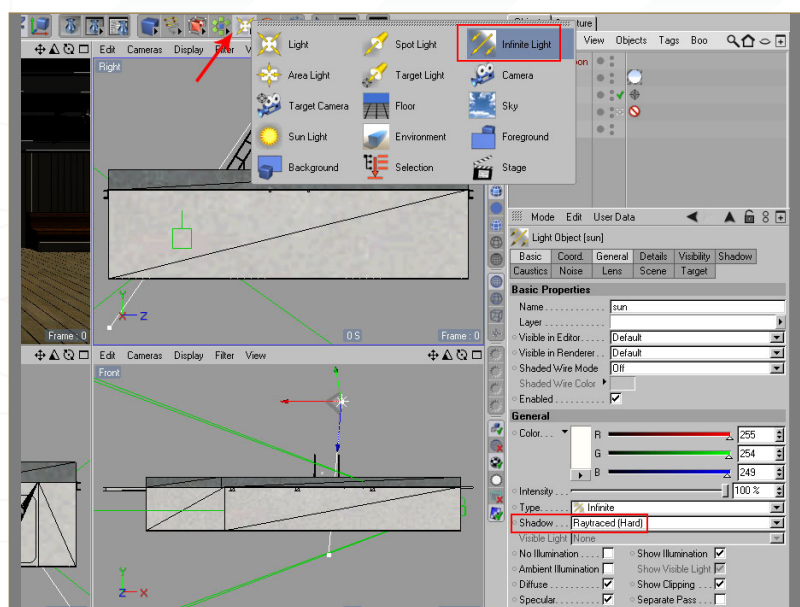


Fig 04

I changed the default settings of the Global Illumination. These low settings allow us to render in a shorter time, and we will therefore use these settings for quick tests.

4. As I mentioned before, we have to insert sunlight into the scene, so from the main menu (Objects > Scene) choose the Infinite Light. Set up the Shadow as Raytraced (Hard). In reality, when an object is illuminated by direct light from the sun, it will cast clean shadows and their edges will be defined. When an object is illuminated by indirect light, its shadows will be blurred and its edges will be less defined. The definition of the edge of the shadow also depends on the height of the objects. The colour of the light is a very bright yellow and its Intensity has been set to 100% (Fig04).

5. Now position the Sun Light, as shown in Fig05. Its inclination angle is set to about 55°.

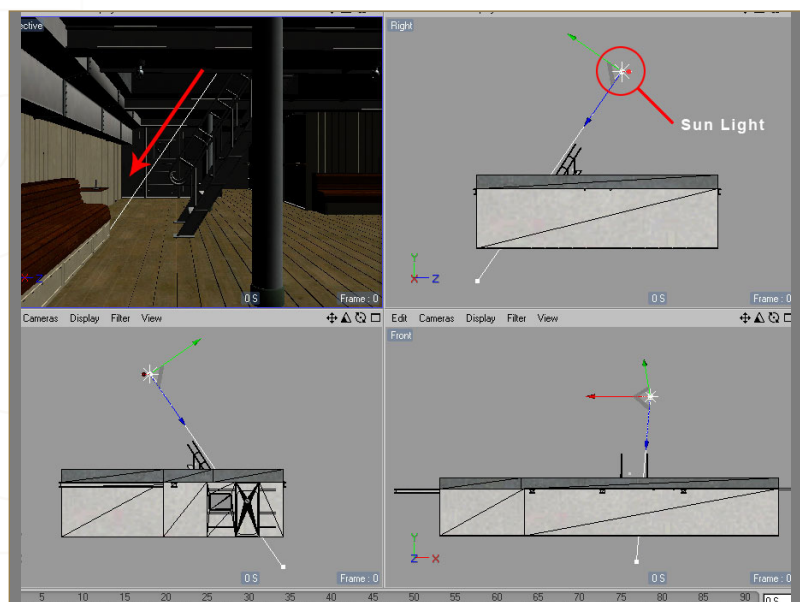


Fig 05

6. Let's make a test render now, just to help explain what I talked about in the previous paragraph (Fig06). You can see from image how the edges of the shadow are well defined.

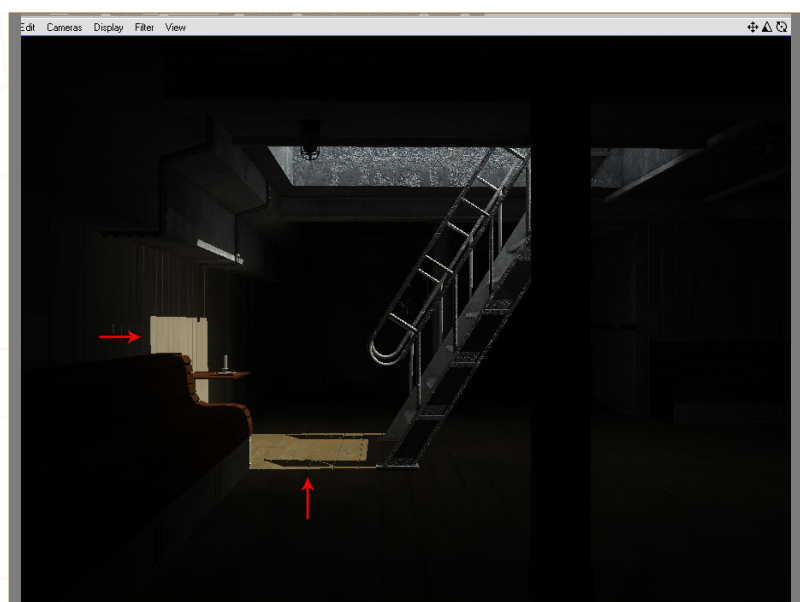
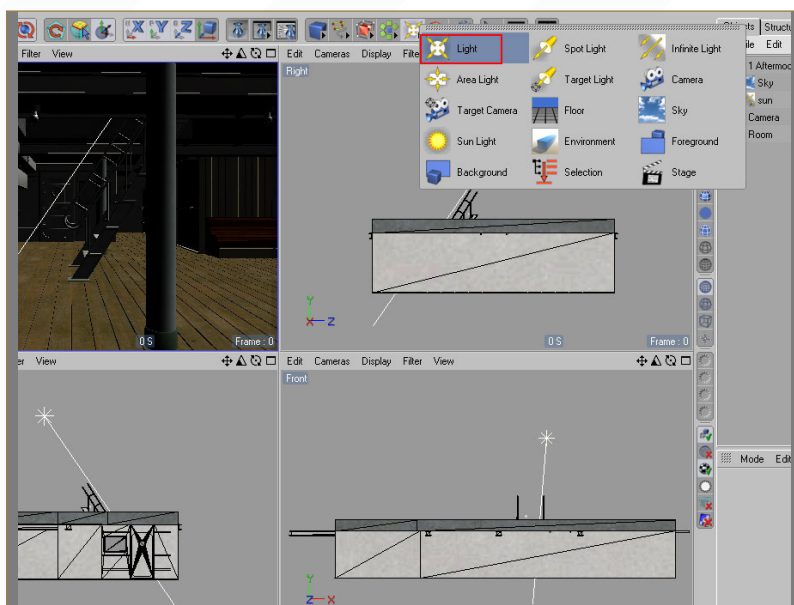


Fig 06

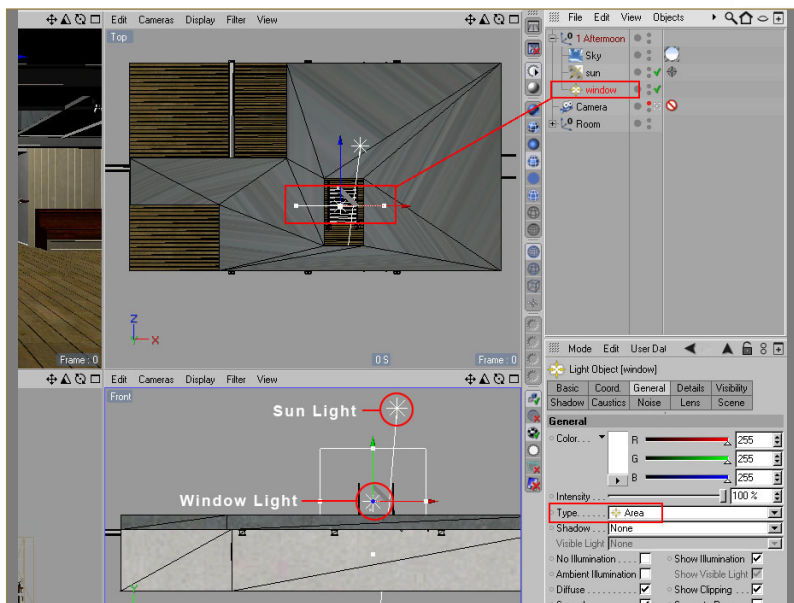
7. You will notice that the room is still very dark. If we want to obtain a realistic render, we will have to increase the values of the parameters of the Global Illumination. The higher the values, the longer the render time will be. Since we want to find compromise between quality and time, I will add a new light, as shown in Fig07.

Fig 07



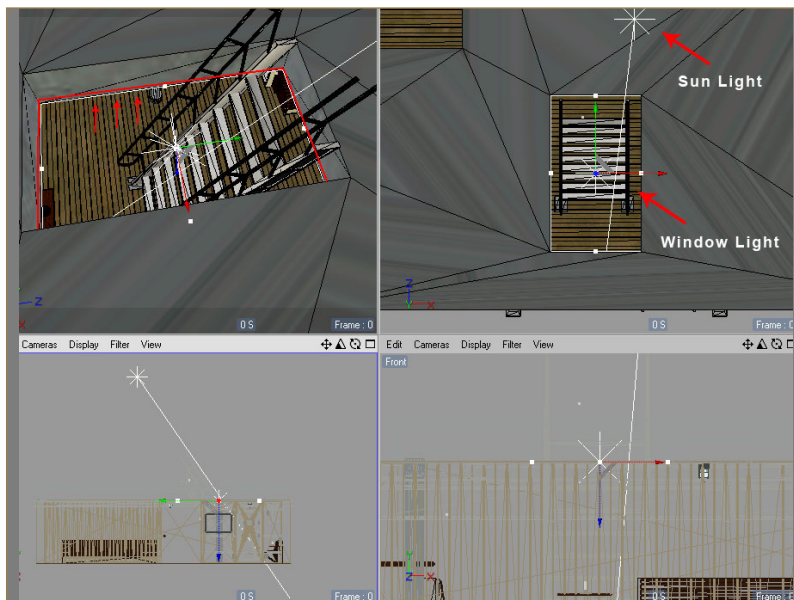
8. I will call this new light, "Window". Position the Window Light in correspondence with the opening in the ceiling, as seen in Fig08. In the Light properties, change the default type to Area, as shown on the bottom right of Fig08.

Fig 08



9. You will now notice that the shape of the light is a rectangle. Position the Window Light as seen in Fig09. The size of the light must cover the whole opening, and the light must be positioned in correspondence with the bottom edges of the hole, as shown on the top left of figure. This light has the job of spreading the sunlight. Think about an object that, when it is hit by sunlight, it multiplies the light - it acts as a sort of amplifier, or multiplier...

Fig 09



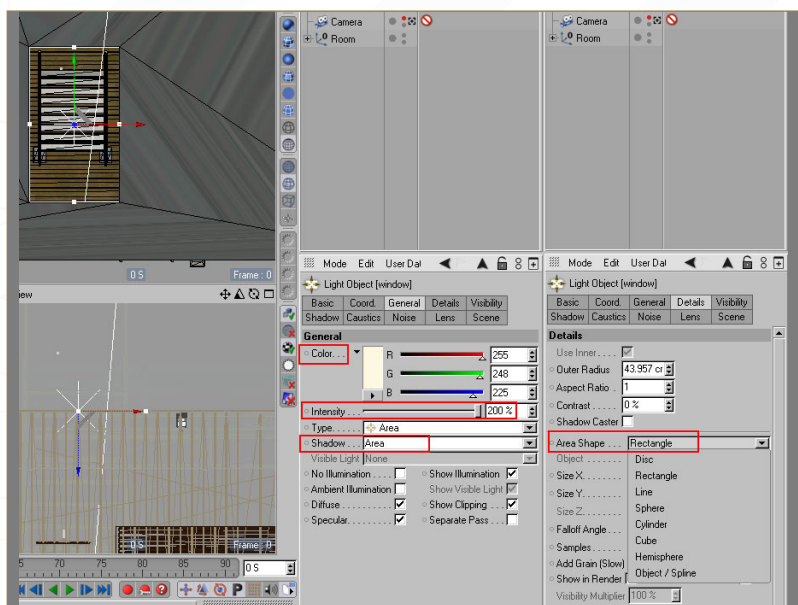


Fig 10

10. Go back now to the properties panel of the Window Light. Change the default colour and increase the Intensity, as seen in Fig10. Choose Shadow as the Area type. This shadow is the blurred type that we spoke about in paragraph 4. You will now notice that, in the cabin, some objects are directly being hit by the Sun Light, and these objects will cast Raytraced shadows. The rest of the cabin will cast soft shadows, thanks to the Area light. You may change the shape of the Area light, as seen on the left of figure, but in this example the shape of the Window Light will remain a rectangle.

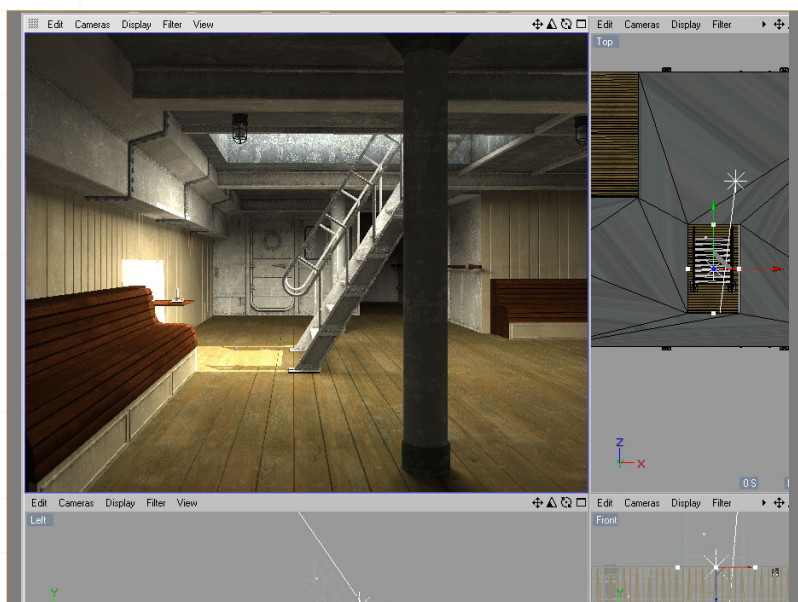


Fig 11

11. Let's now make a render to see how things are going... Well, the room is much brighter now. You can see that the shadow of the staircase is better defined than the shadow of the column, and this is the practical demonstration of the concept that I explained previously.

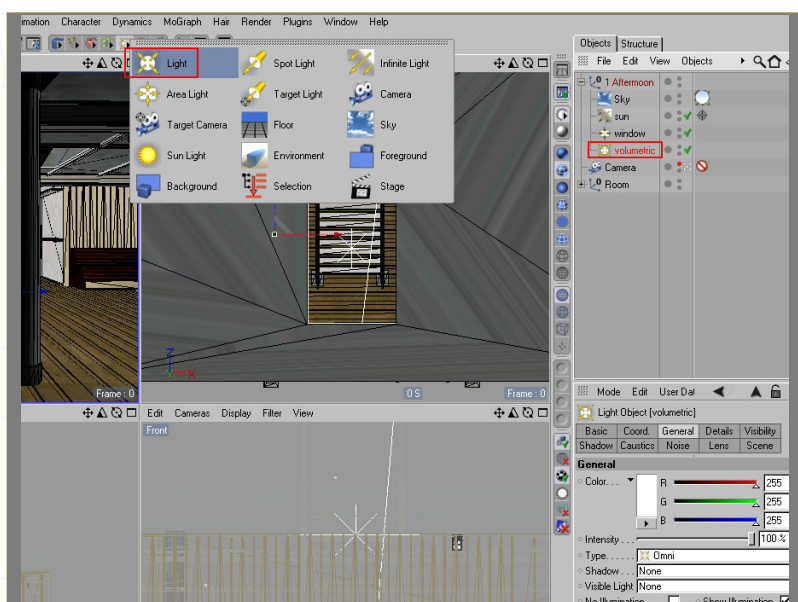
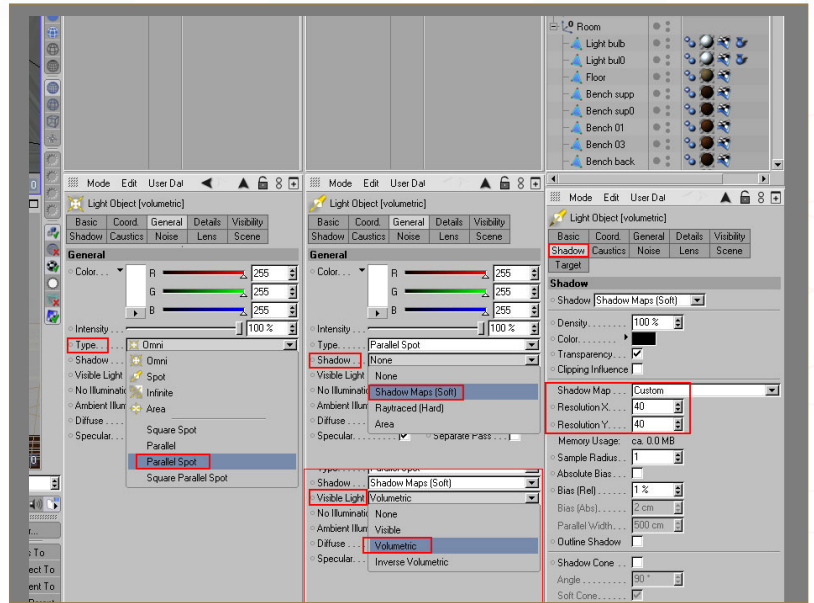


Fig 12

12. Now, the scene is missing something that will make it more realistic. In the next paragraphs I am going to show you a trick that gives a nice realistic mood to a scene. For now, add another light, as shown in Fig12. I called this light, "Volumetric". This light will have the task of simulating the volumetric effect of the sunlight.

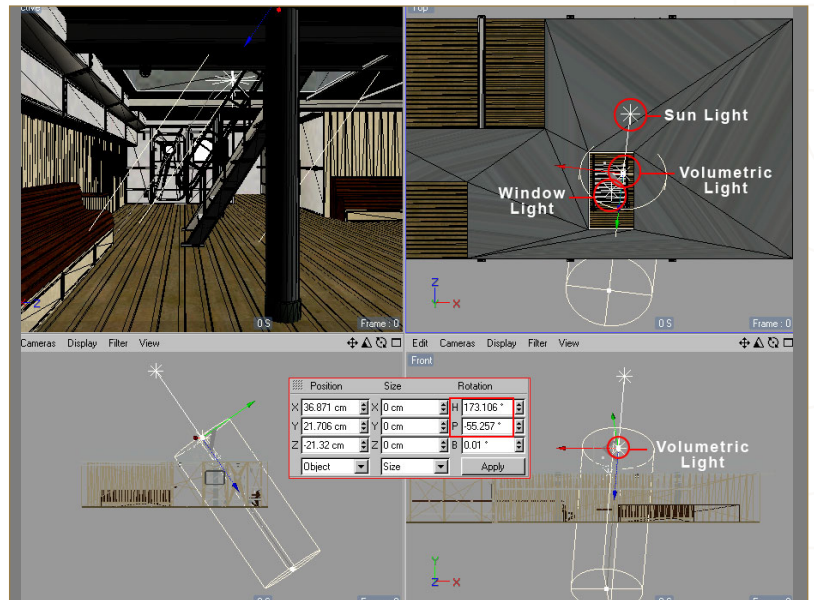
13. In the Light properties, change the default settings, as seen in Fig13. Choose the Parallel Spot type with Shadow Maps and Visible Light. In this case, the visible light will be Volumetric. This light should not produce shadows, however if we disable the shadows, the light will cross the walls. So, change the default values of the Resolution of the Shadow Map, as shown on the right of Fig13. This will allow you to have some almost non-existent shadows.

Fig 13



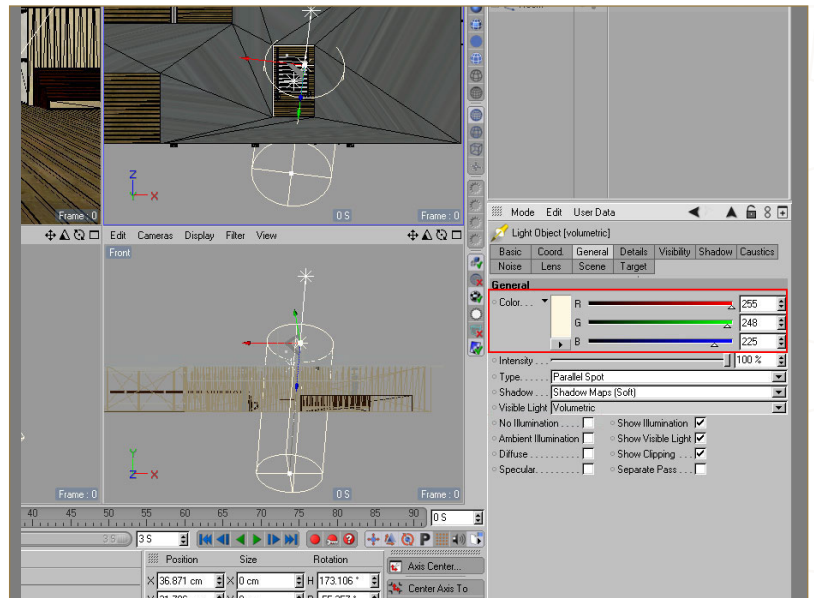
14. You can now see from Fig14, that the shape of this light is similar to a cylinder, and it fits for the type of effect that we are looking for. Position the Volumetric Light, as seen in Fig14, and give it the same rotation values that the Sun Light was given.

Fig 14



15. Finally, change the default colour of the Volumetric Light to yellow - a bright yellow - as shown in Fig15.

Fig 15



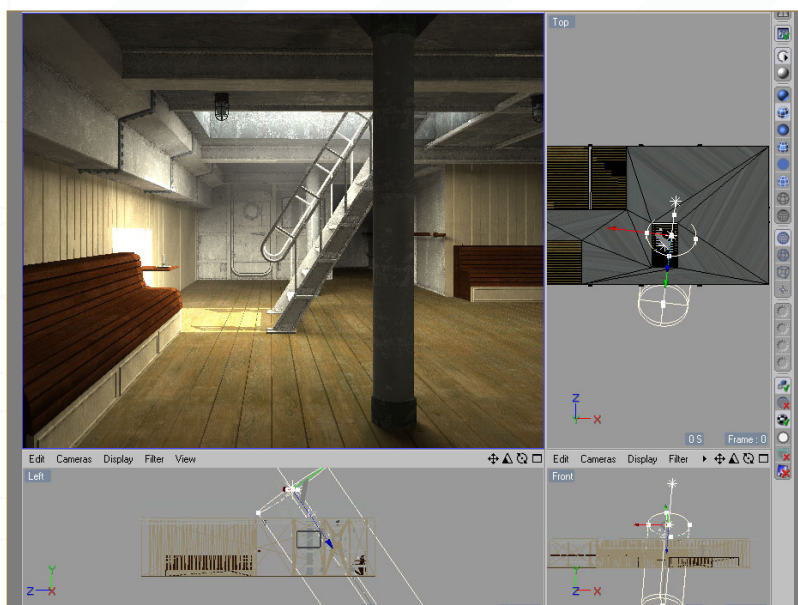


Fig 16

16. Now make a render (Fig16).

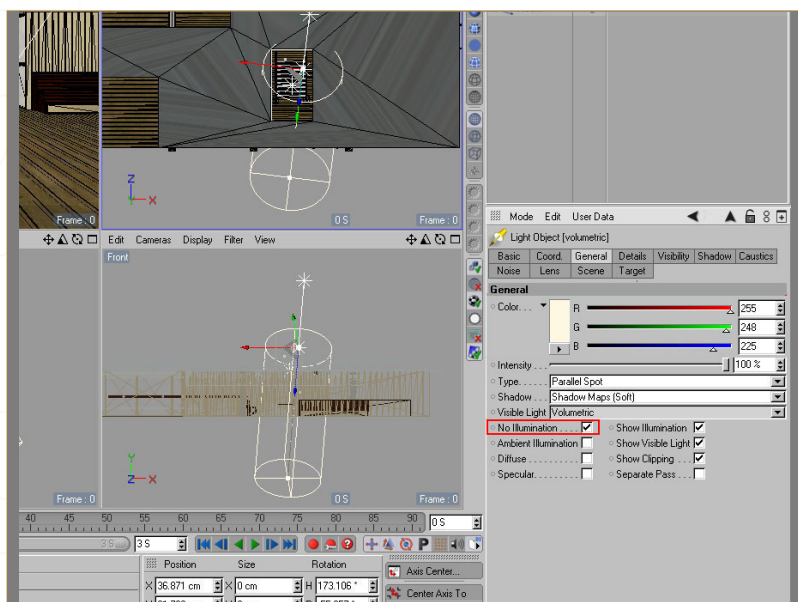


Fig 17

17. This light will not produce light, so go into its properties and check the No Illumination parameter. In this case, we won't need to worry about shadows because this type of light won't cast any.

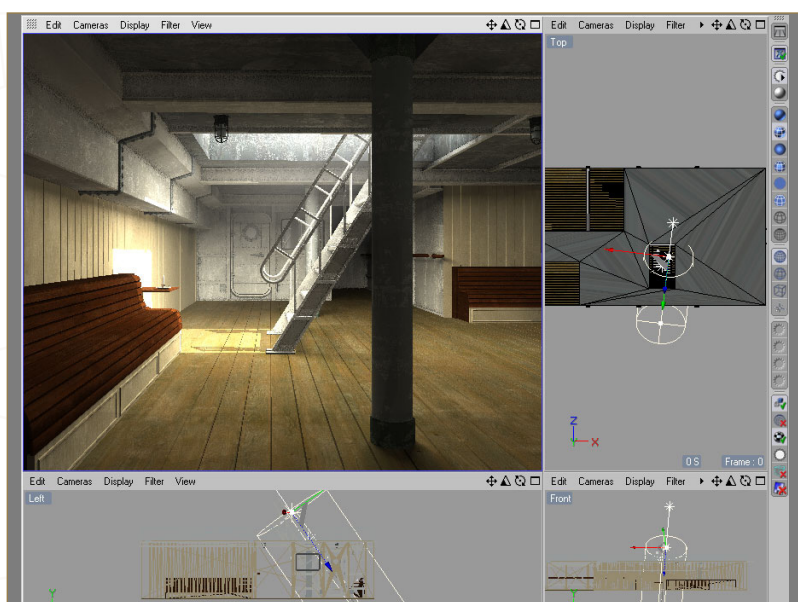
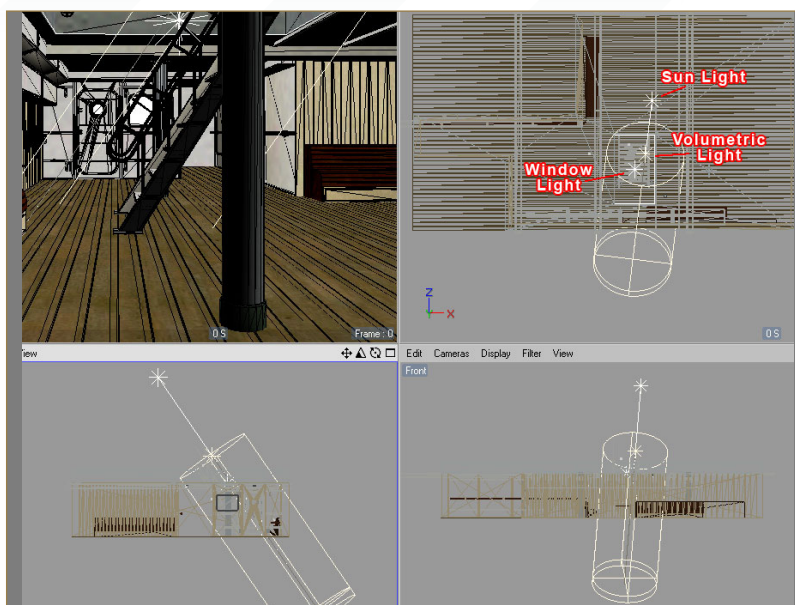


Fig 18

18. Now make a render to see how things are going (Fig18). We can see that the ray of light enters into the room just as it would in the real world. This volumetric effect gives the scene a realistic mood.

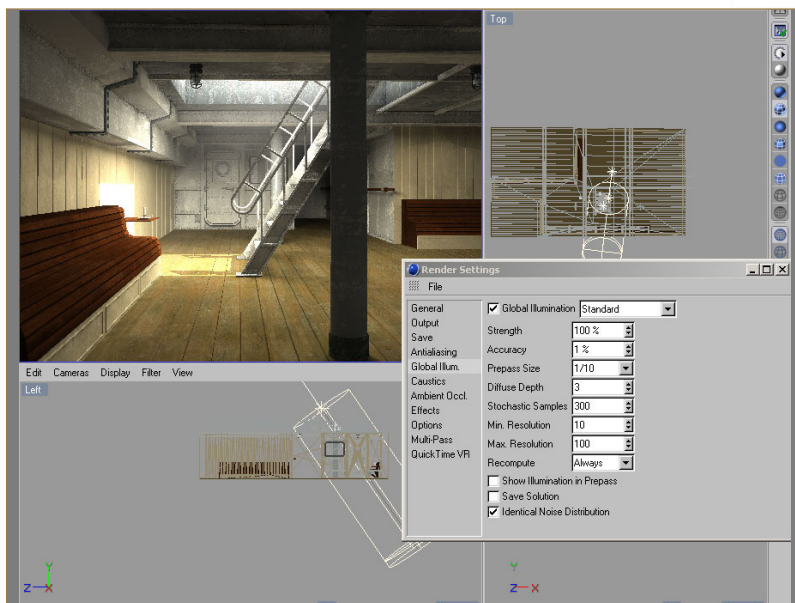
19. Our Lighting Rig is finally complete. To summarise, our scene has three lights and an object sky. The object sky produces the GI, the Sun Light simulates the Sun, the Window Light multiplies the light of the Sun Light and, finally, the Volumetric light gives the scene a volumetric light effect (Fig19).

Fig 19



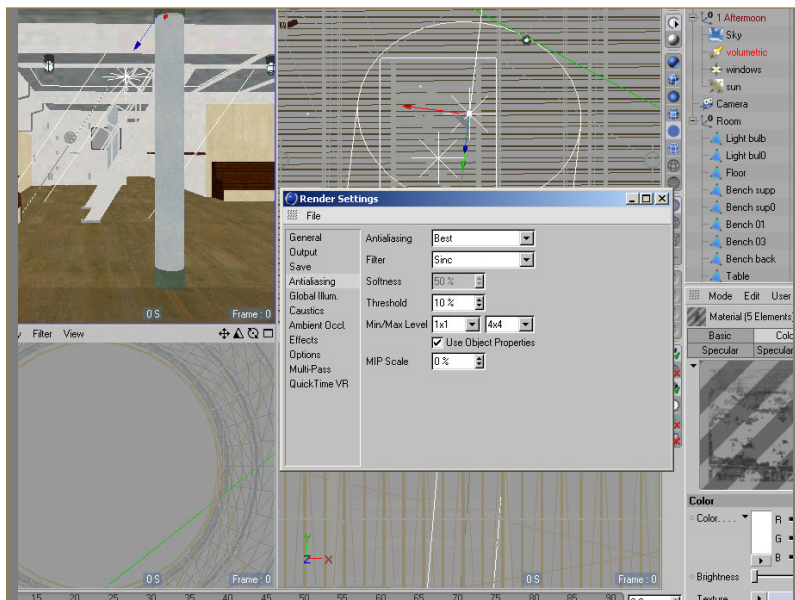
20. We are now ready to make tests renders. In Fig20, I changed some parameters of Global Illumination, to: Stochastic Sample = 300; Max. Resolution = 100.

Fig 20



21. Before launching the final render, we have to enable the AA. In Fig21 you can see the settings of the Anti-aliasing.

Fig 21



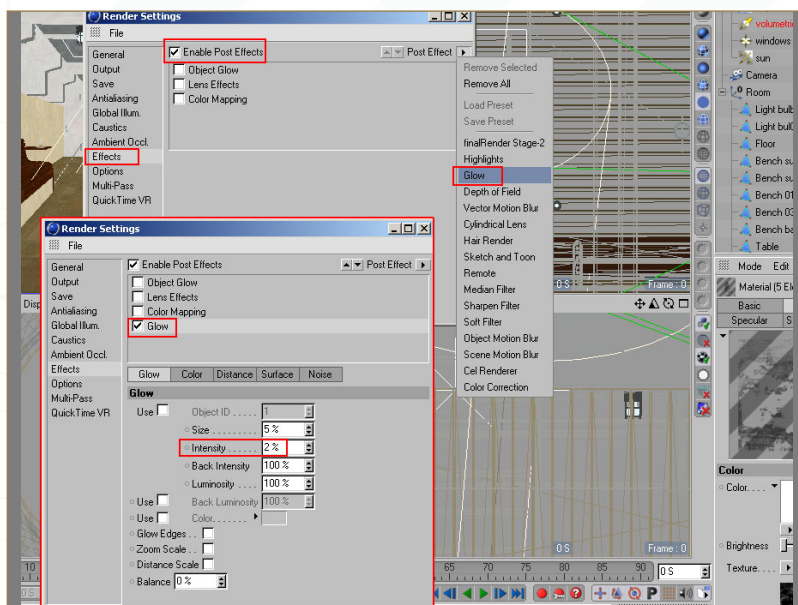


Fig 22

22. I added a Post Effect for the final render.

This Post Effect is a Glow, and if you appreciate it you may also wish to add the same glow to your own scene. You can find this effect in the Post Effect list, as shown in Fig22.

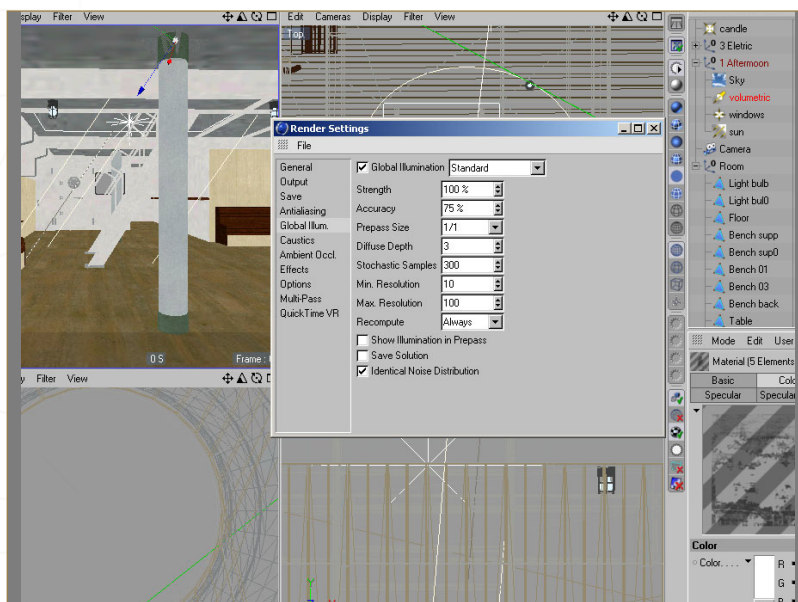


Fig 23

23. Now it's time to change the Global

Illumination settings for our final render (Fig23).



Fig 24

24. This is the final result after a 4-hour render

(Fig24). We can now stop here, because the final image fully satisfies our intended goal (Fig24).

That's all for this month. I hope you've enjoyed this part, and I look forward to working with you again next month!

3D ENVIRONMENT LIGHTING

NATURAL EXTERIOR LIGHTING SUNNY AFTERNOON

Originally designed and modelled by:
RICHARD TILBURY

Tutorial by:
**GIUSEPPE GUGLIEMUCCI
& NIKI BARTUCCI**

For more from these artists visit:

www.pikoandniki.com

Or contact them:

niki@pikoandniki.com







Chapter 02

NATURAL EXTERIOR LIGHTING
TWILIGHT



NATURAL EXTERIOR LIGHTING TWILIGHT

In this second part of the tutorial, we will see how to illuminate the ship cabin by using natural exterior light, for which the environmental condition will be: sunset.

1. First of all, open the scene and examine it (download can be found at the end of this tutorial; click on the Free Resources logo). You can see from the cabin that there is an opening on the ceiling, a window, and a smaller window in the door. The sunlight will illuminate the cabin through these openings. Since we are using Global Illumination, we have to turn off the Auto Light (Render Settings > Options > Auto Light > Off). I then suggest you also disable the Antialiasing (AA) parameters (Render Settings > Antialiasing > None), as this will allow you to save time during the rendering phase. We will enable the AA for our final render (Fig01).

2. Before inserting sunlight, add a Sky object in the scene and then assign it a material that has a Gradient as texture in the Illumination Channel (Fig02). This Sky object will generate the Global Illumination.

3. Fig03 shows the Global Illumination settings that I'm going to use for our renders tests. I decreased the Accuracy to 1%, the Prepass Size to 1/10, the Stochastic Samples to 100, and the Max Resolution to 50. This will allow us to save a lot time during the rendering phase. You will notice from the render on the top left of the image that the only Sky object cannot represent the illumination system, so we need a light source that can simulate the sun...

Fig 01

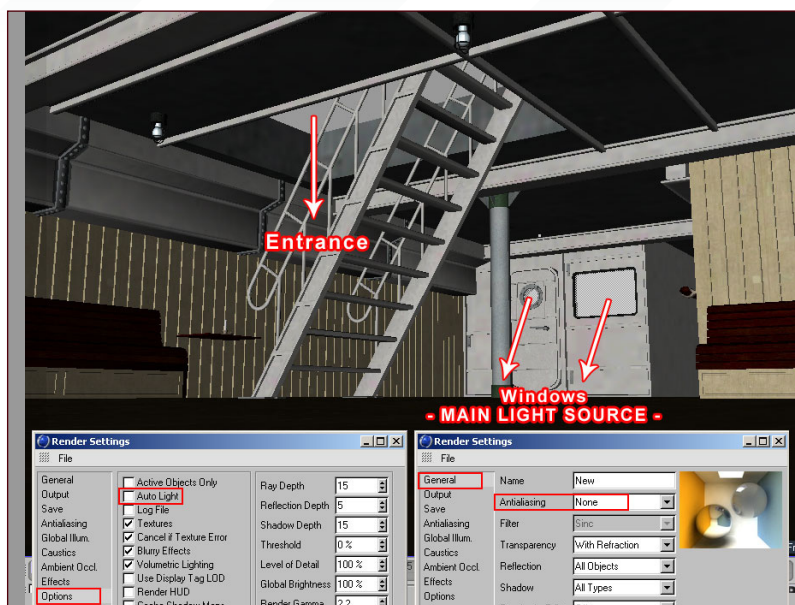


Fig 02

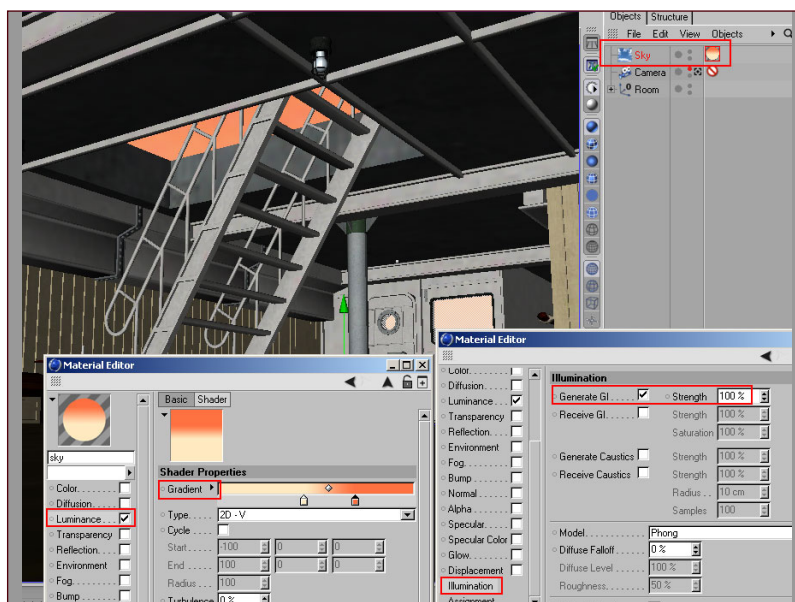
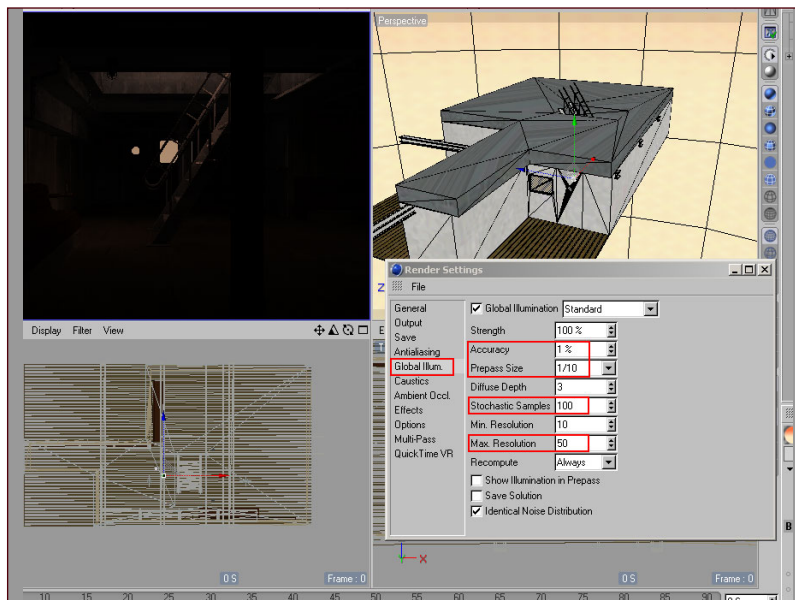


Fig 03



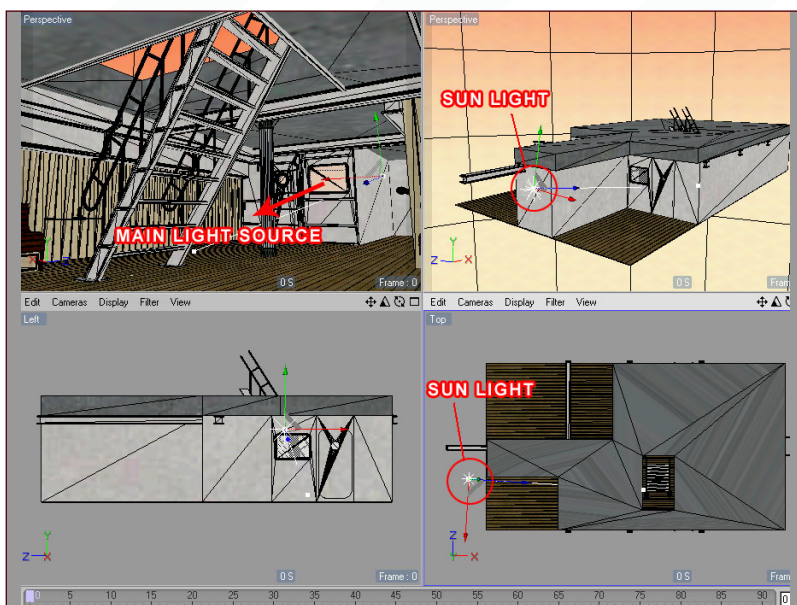


Fig 04

4. So, let's now insert into the scene an Infinite Light (Objects > Scene > Infinite Light) and position it as shown in Fig04. We will make the sun visible through the window, as this will give the scene a really nice effect.

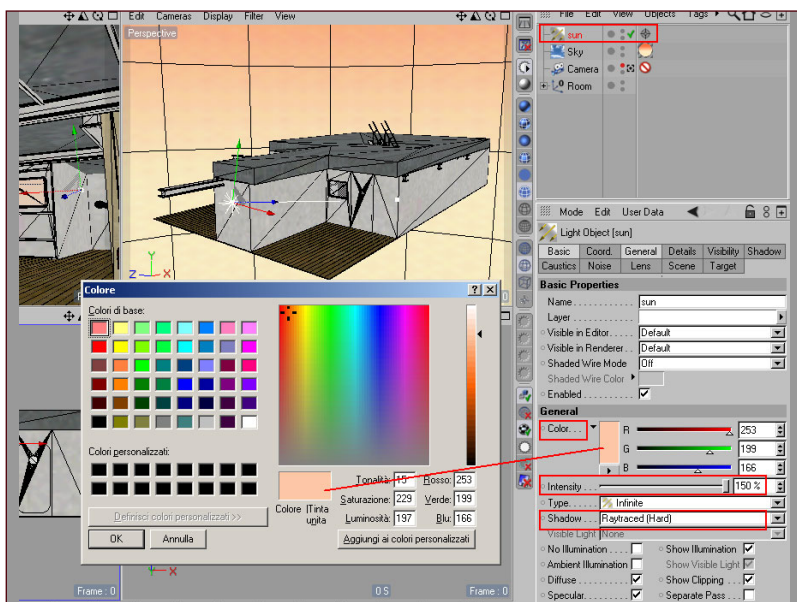


Fig 05

5. In the properties of the Sun light, change the default colour to a bright orange, as shown in Fig05. Increase its Intensity to 150% and choose Shadow as the Raytraced type. I have already explained how shadows work in reality in the previous part of this tutorial series, but I'll repeat it a little for you here, too.

In reality, when an object is illuminated by the direct light of the sun, it will cast clean shadows; their edges will be defined. However, when an object is illuminated by indirect light, its shadows will be blurred and its edges will be less defined. The definition of the edge of the shadow also depends on the height of the objects.

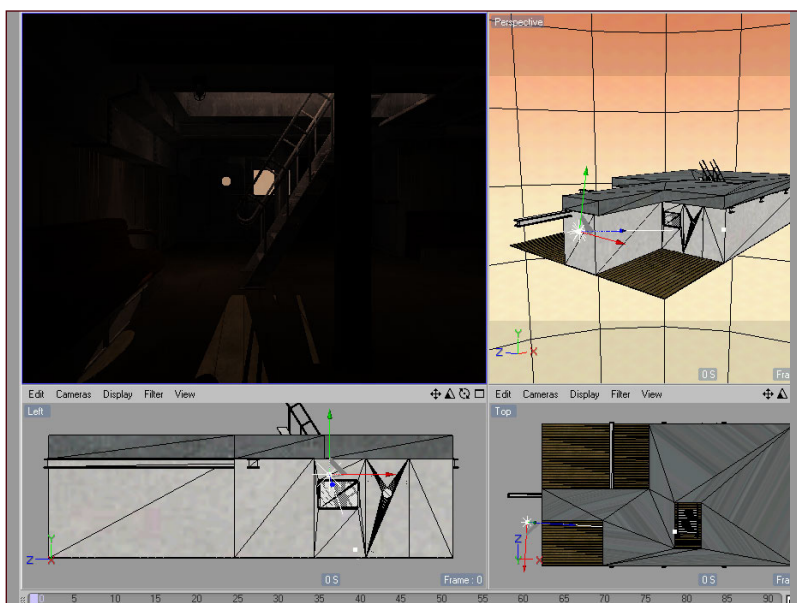
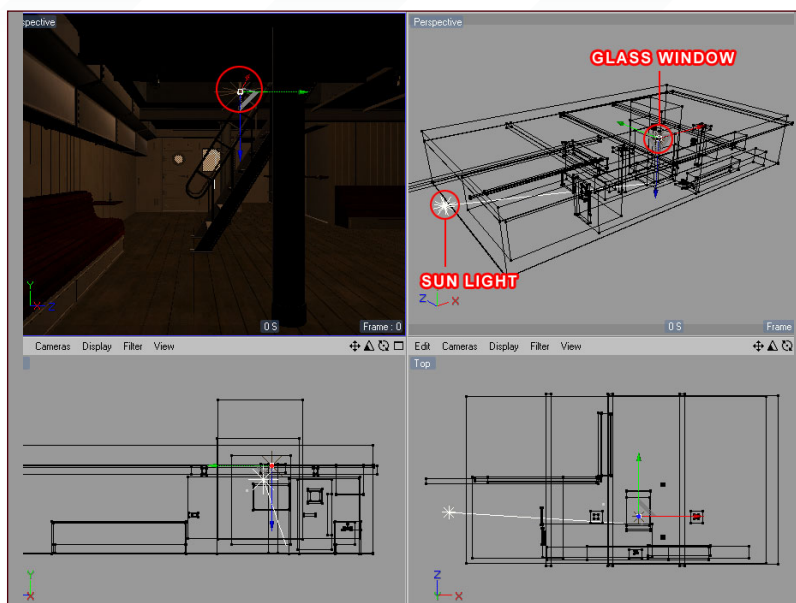


Fig 06

6. Let's now make a test render. You will notice from Fig06 that the sunlight comes in through the windows and generates the shadows (notice their edges are well defined). The Sky generates the GI that comes in from the opening on the ceiling. Of course, the cabin is still too dark like this so we are going to have to add another light...

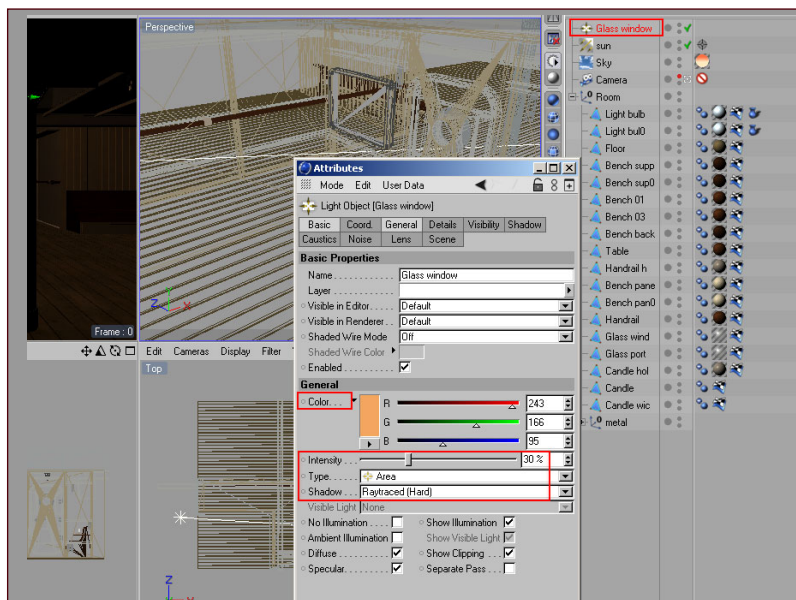
7. Insert a new light into the scene. Position it in correspondence with the entrance on the ceiling, as seen in Fig07. I named this new light, "Glass Window". This light has the job of better spreading the light from the Sun. Think about an object that, when hit by sunlight, it multiplies the light as a sort of amplifier or multiplier.

Fig 07



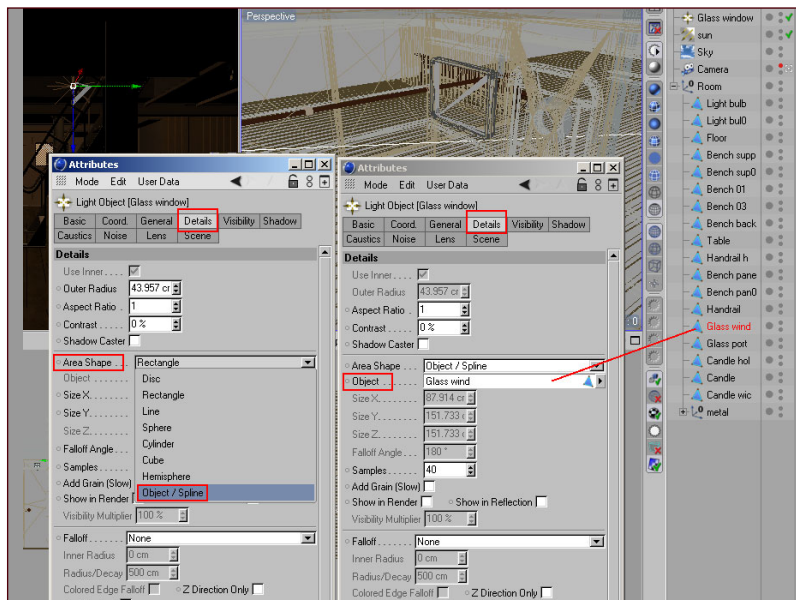
8. In the properties of the Glass Window light, change the default parameters as shown in Fig08. The type must be Area.

Fig 08



9. Still in the properties of the Glass Window light, go into the Details panel. Change the default Area Shape (Rectangle) to Object/ Spline, and then drag and drop the Glass Window object into the Object box (Fig09). This will allow us to obtain the Glass Window object as a light emitter. You can obviously control the quantity of light produced through the Samples. In this case, we have 40 as the value of the Samples. (Think about 40 points distributed on the object's surface and each point generates light...)

Fig 09



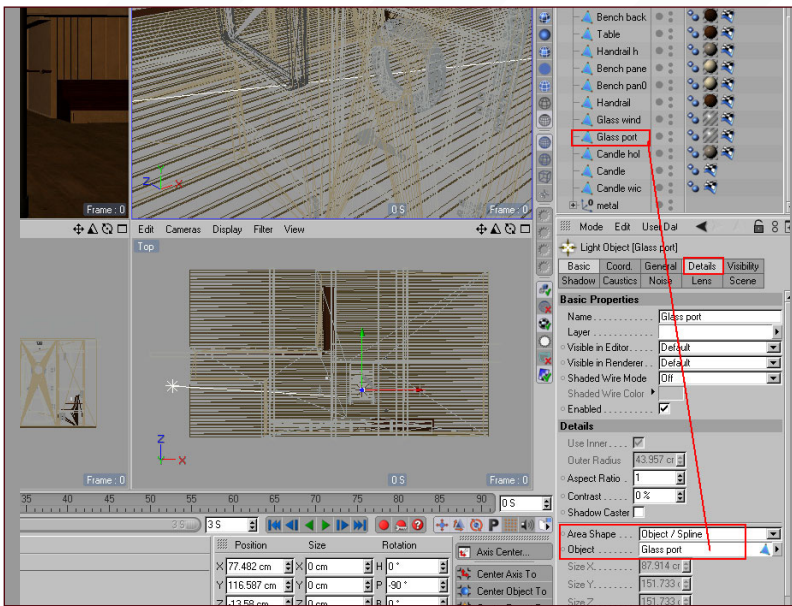


Fig 10

10. Add another light, like the previous one (you can copy the Glass Window light), and rename it "Glass port". In the Details panel, change the Object to Glass port object.

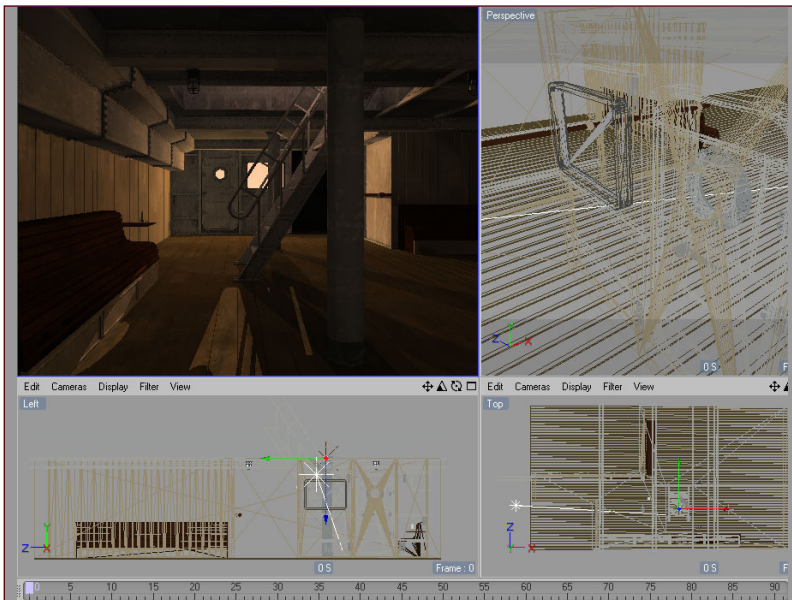


Fig 11

11. Time for another render, now (Fig11). Not so bad this time, but we still have some work to do on the lighting...

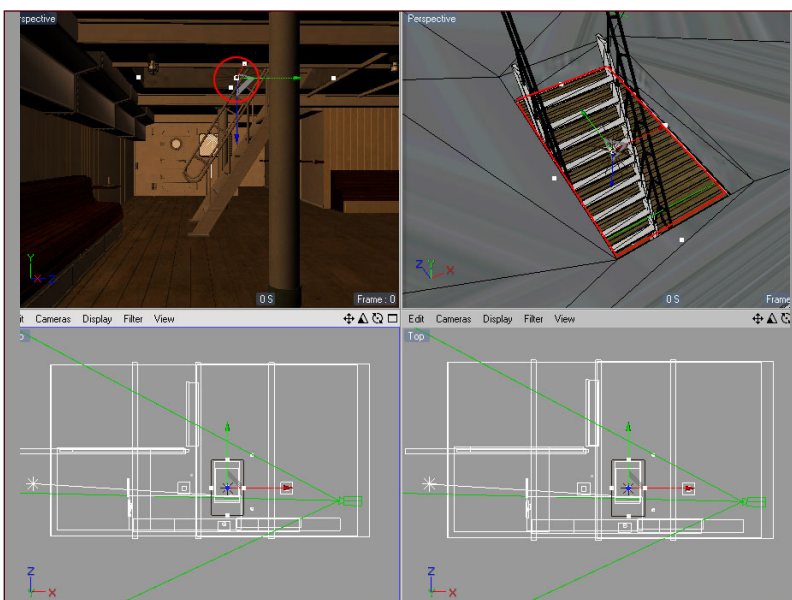
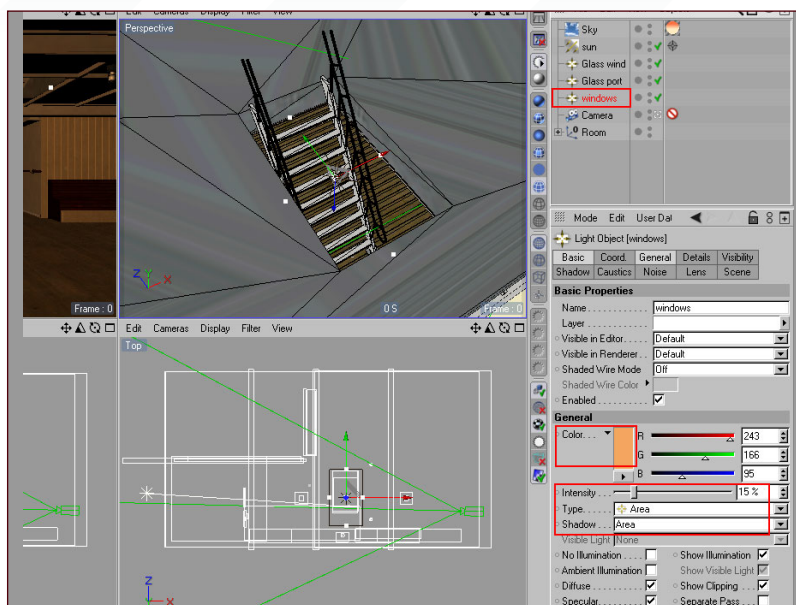


Fig 12

12. Add another light, call it "Window", and position this light in correspondence with the opening on the ceiling. In the light properties, change the default type to Area. The size of the light must cover the whole area of the opening, and the light has to be positioned in correspondence with the bottom edges of the hole, as shown in Fig12.

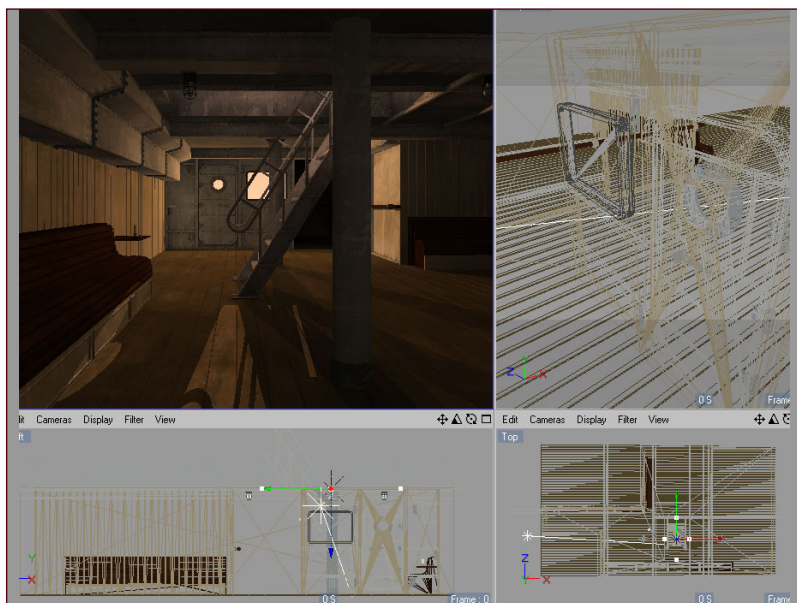
13. Still in the properties for the Window light, change the Colour, Intensity and Shadow parameters, as seen in Fig13. For the Shadow, choose the Area type (this shadow is the blurred type that we discussed in paragraph 4 of the previous tutorial part). Now, you should notice from the cabin that there are some objects which are being directly hit by the Sun light, and these objects will cast Raytraced shadows. The rest of the cabin will cast soft shadows, thanks to the Area light.

Fig 13



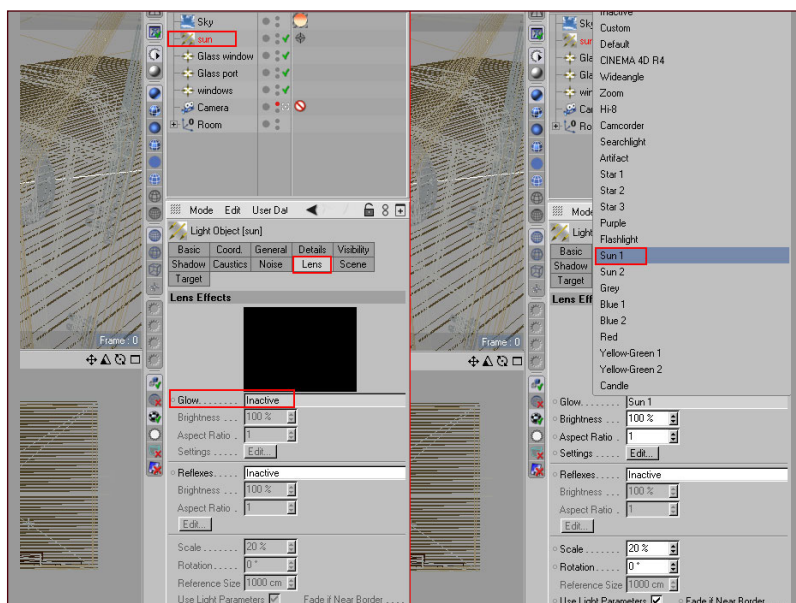
14. Let's make another render to see how things are going (Fig14). The light we just added has the job of better spreading the light from the Sun, as with the Glass Window and Glass port lights.

Fig 14



15. Earlier, I mentioned that the Sun light will be visible through the window near the door. In order to achieve this, we need to add a Lens to the Sun light. In the properties of the Sun light there is a parameter called Lens, as seen on the left of Fig15. Go into its control panel and open the Glow's menu by clicking on the box; a list of the types of glow will appear. I chose the "Sun1" type, as shown on the right of image.

Fig 15



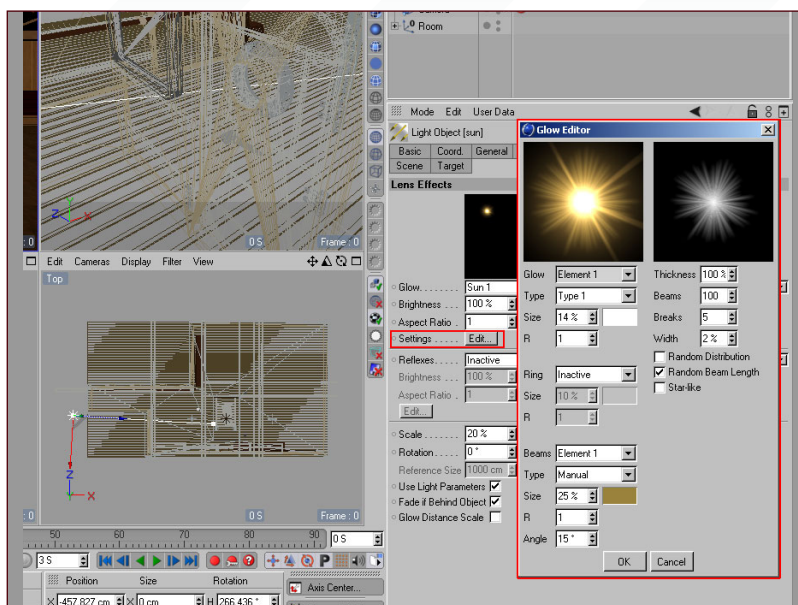


Fig 16

16. Clicking on the Edit tab will open up the Glow Editor (Fig16). Here you can modify the glow.

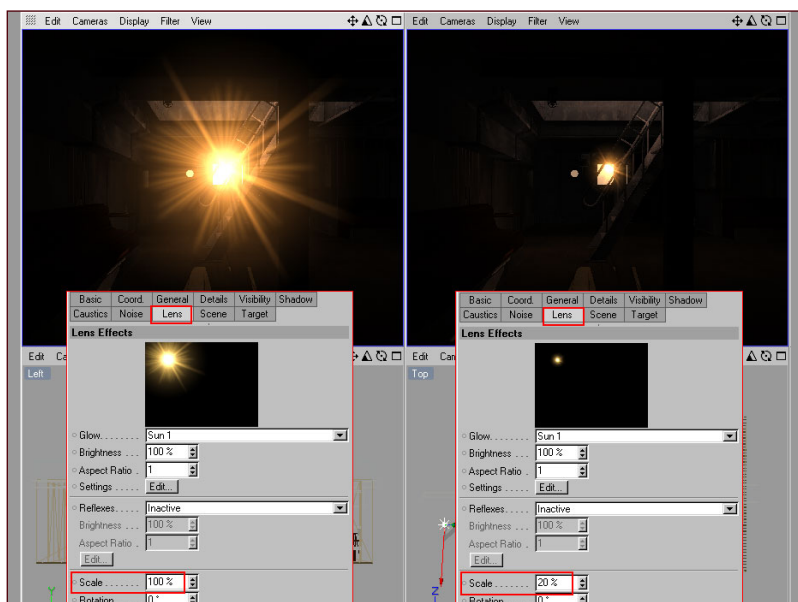


Fig 17

17. After you have modified the glow according to your tastes, make some test renders in order to find the right size of the lens. For example, on the left of Fig17 you can see the lens at 100% of the Scale, whilst on the right of figure I decreased the Scale to 20% (I turned off the Glass Window, Glass port and Window lights to save time during the rendering phase).

That was the last thing to do in order to complete our lighting rig.

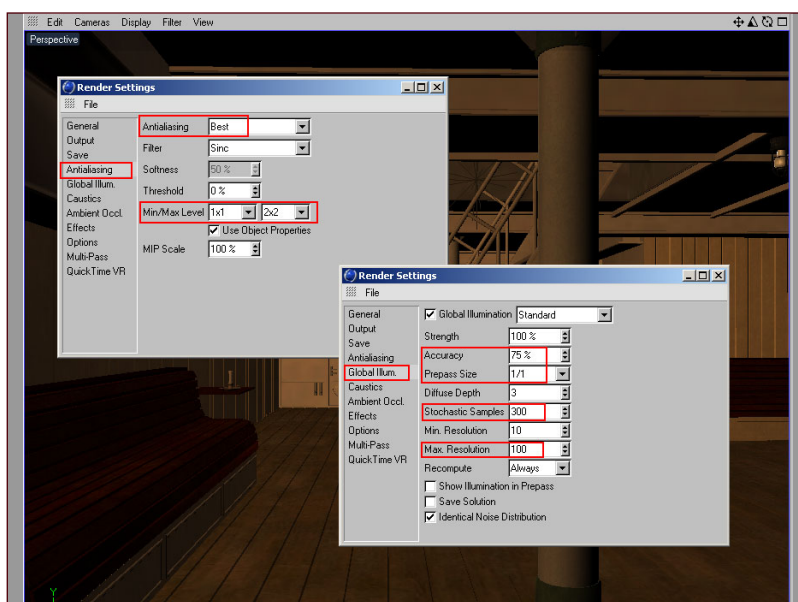


Fig 18

18. Now we are ready for our final render. Before we do this, we need to enable the AA (antialiasing) and we need to increase the parameters of GI (global illumination) (Fig18). That's all for this month. I hope you have enjoyed this part and I'll be back next month with

Originally designed & modelled by:

RICHARD TILBURY

Tutorial by:

**GIUSEPPE GUGLIELMUCCI
& NIKI BARTUCCI**

For more from this artist visit:

www.pikoandniki.com

Or contact them:

niki@pikoandniki.com





Chapter 03

NATURAL EXTERIOR LIGHTING
MOONLIGHT



NATURAL EXTERIOR LIGHTING MOONLIGHT

Welcome back to this series of lighting tutorials. In this part, we will see how to illuminate our ship cabin using natural exterior light. The environmental condition this month, is: Moonlight.

1. First of all, open the scene and examine it (download can be found at the end of this tutorial; click on the Free Resources logo) (Fig01). You can see in the cabin that there is an opening on the ceiling, a window, and a small window on the door. The moonlight will illuminate the cabin by crossing through these openings. Since we are using Global Illumination, I suggest you disable the Antialiasing (AA) parameters and turn the Auto Light off (Fig01).

2. As we did in the previous tutorials, add a Sky object in the scene and assign to it a material that has a gradient as a texture in the Illumination Channel (Fig02). The Sky object will generate the Global Illumination.

3. Fig03 shows the Global Illumination settings that I'm going to use for our render tests. I decreased the Accuracy to 1%, the Prepass Size to 1/10, the Diffuse Depth to 1, the Stochastic Samples to 100, and the Max. Resolution to 50. This will allow us to save a lot of time in the rendering phase.

Fig 01

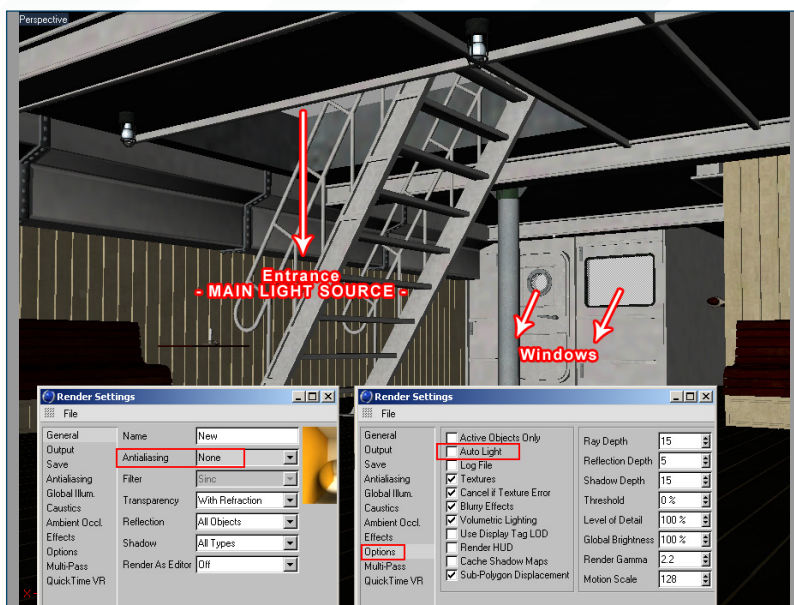


Fig 02

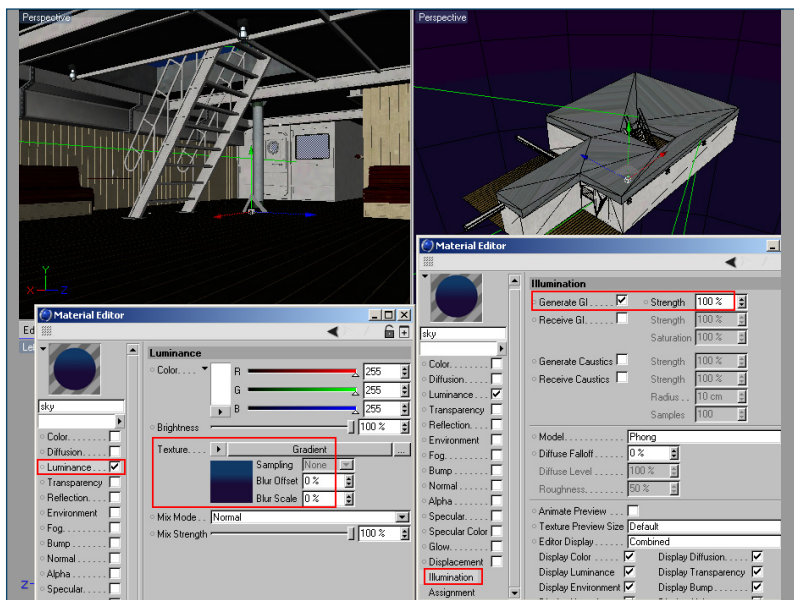
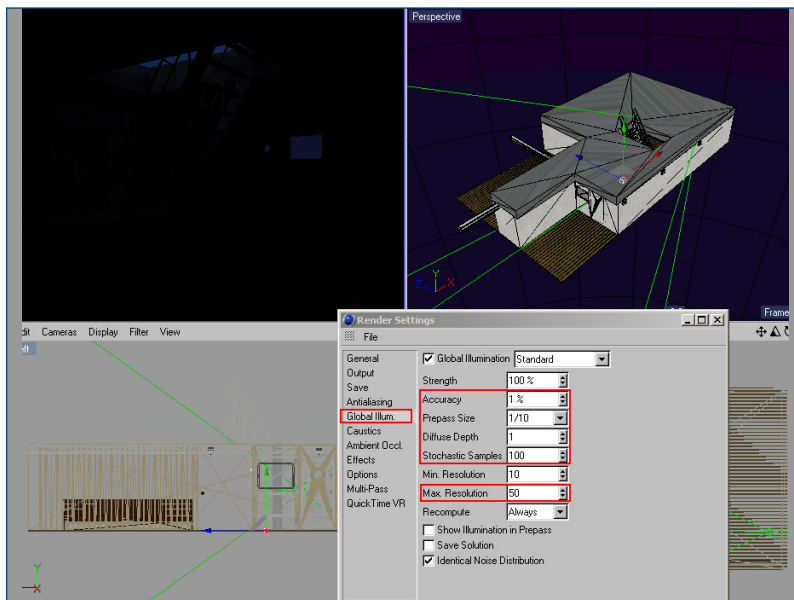


Fig 03



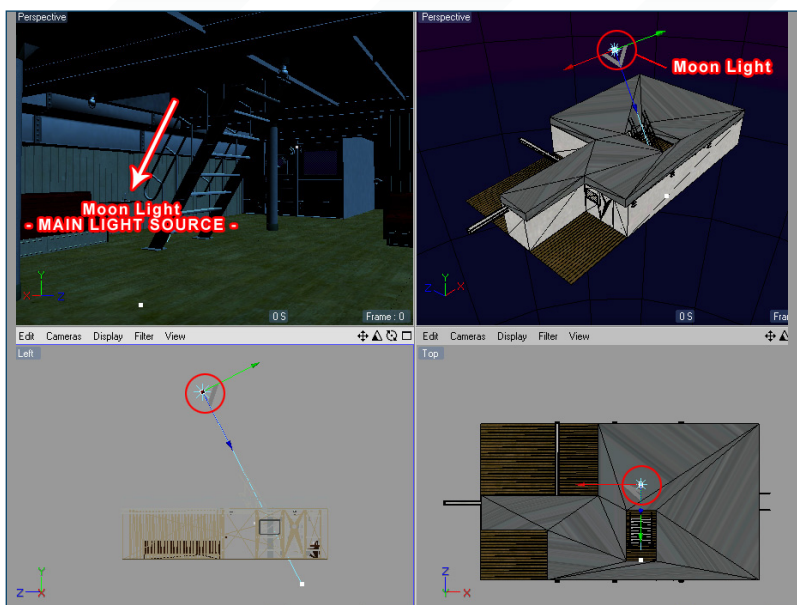


Fig 04

4. Insert into the scene an Infinite Light (Objects > Scene > Infinite Light) and position it as shown in Fig04. I named it "Moon". This light will be the main light source.

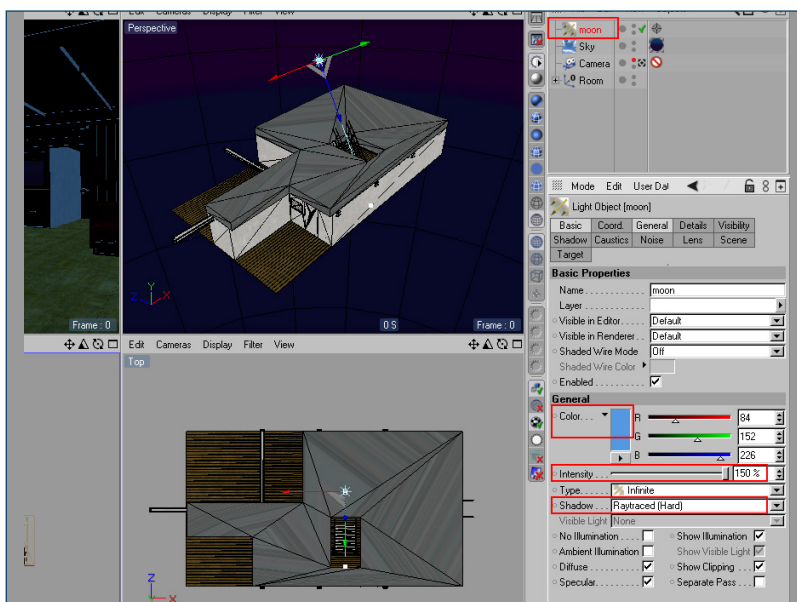


Fig 05

5. In the properties of the Moon light, change the default colour to bright blue, as seen in Fig05. Increase its Intensity to 150% and choose the Raytraced type Shadow. In reality, when an object is illuminated by the direct light of the sun, it will cast clean shadows and their edges will be defined. When an object is illuminated by indirect light, its shadows will be blurred and its edges will be less defined. The definition of the edge of the shadow also depends on the height of the objects.

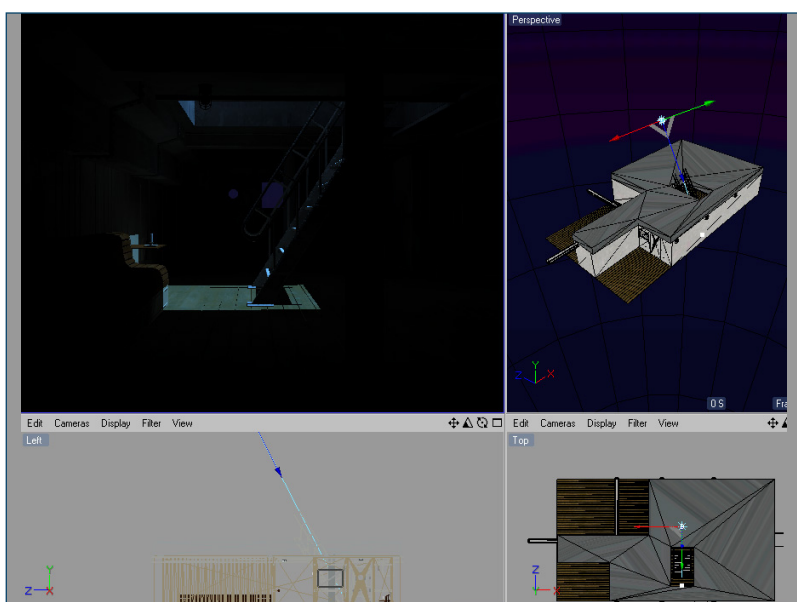
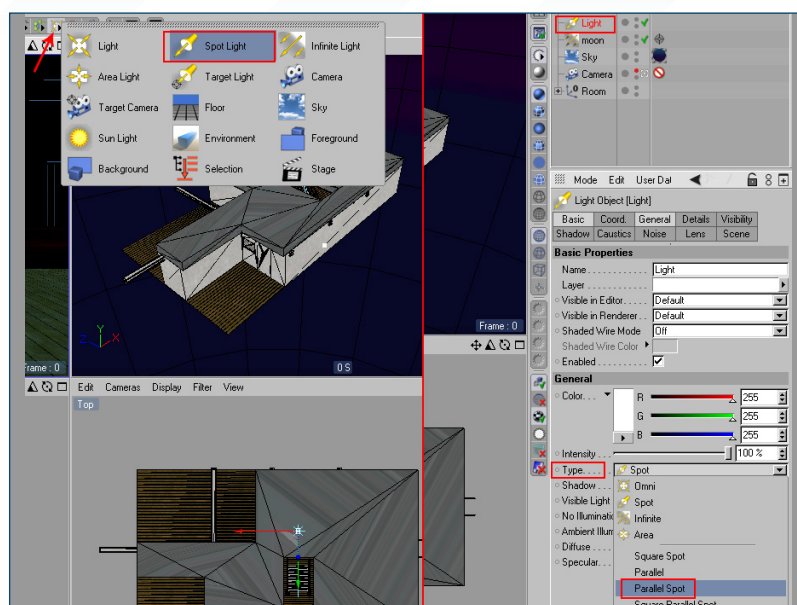


Fig 06

6. Let's make a render (Fig06). You can see from Fig06 that the cabin is still dark, even if the environmental condition is the night.

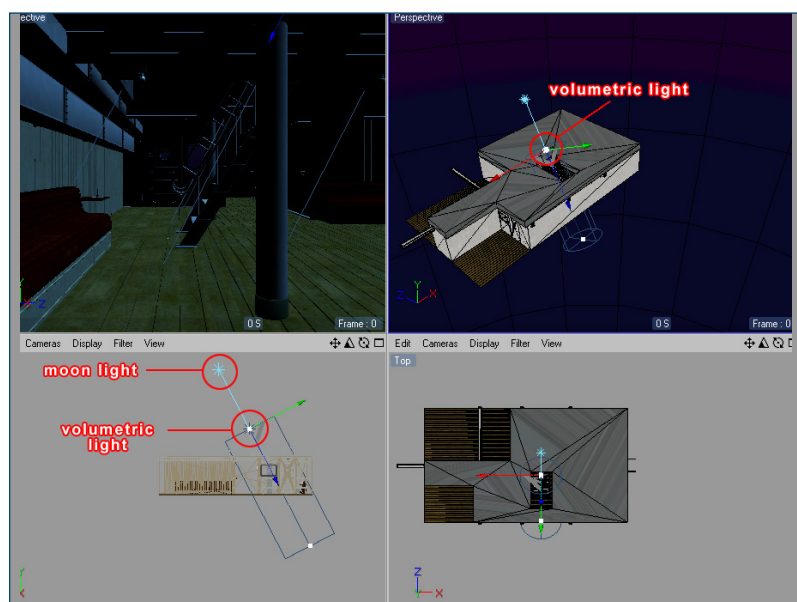
7. Insert a new light in the scene. I chose a Spot light (the type of light that you choose is not important because we will change it). In the properties of the light, change the Type to Parallel Spot, as shown in Fig07. That light has the job of better spreading the light from the Moon.

Fig 07



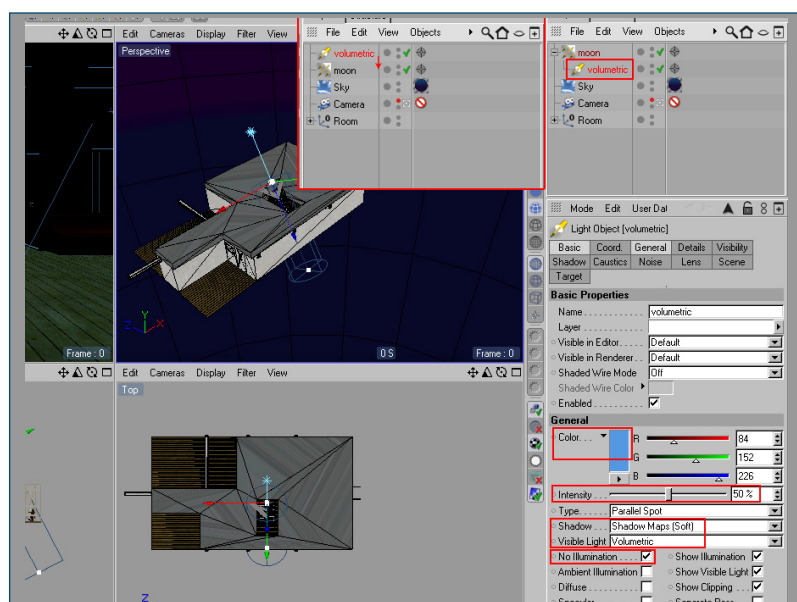
8. I named the new light, "Volumetric". Position the Volumetric light, as shown in Fig08.

Fig 08



9. Select the Volumetric light and drag it into Moon light. Therefore, if you want to change the position of the Moon light, you don't have to worry about the Volumetric light because it will follow the Moon light. In the properties of Volumetric light, change the default colour, as seen in Fig09. Decrease the Intensity to 50% and choose Shadow Maps as the Shadow. Make the light visible by selecting the Volumetric parameter from the Visible Light's menu. Uncheck the No Illumination box, as this light won't generate light.

Fig 09



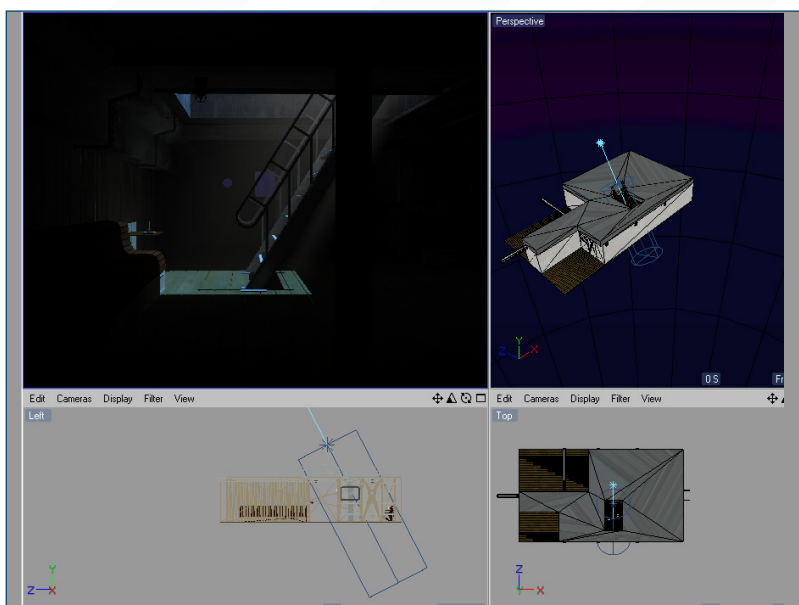


Fig 10

10. Make a render. The volumetric light has the assignment in simulating the volumetric effect of the light, in fact you can notice it from the render (Fig10).

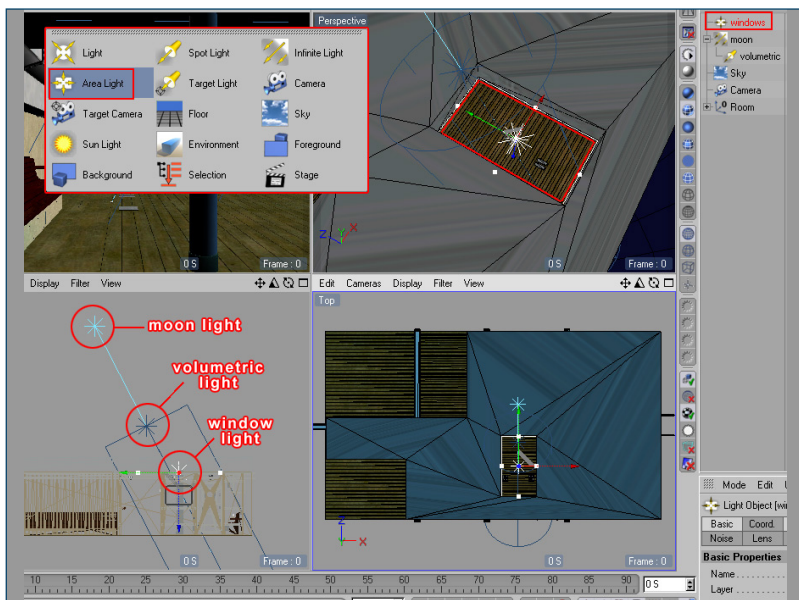


Fig 11

11. Add another light: choose the Area light this time. Call it "Window" and position it in correspondence with the entrance on the ceiling. The size of the light must cover the whole opening of the entrance, and the light has to be positioned in correspondence with the lower edges of the hole, as shown in Fig11.

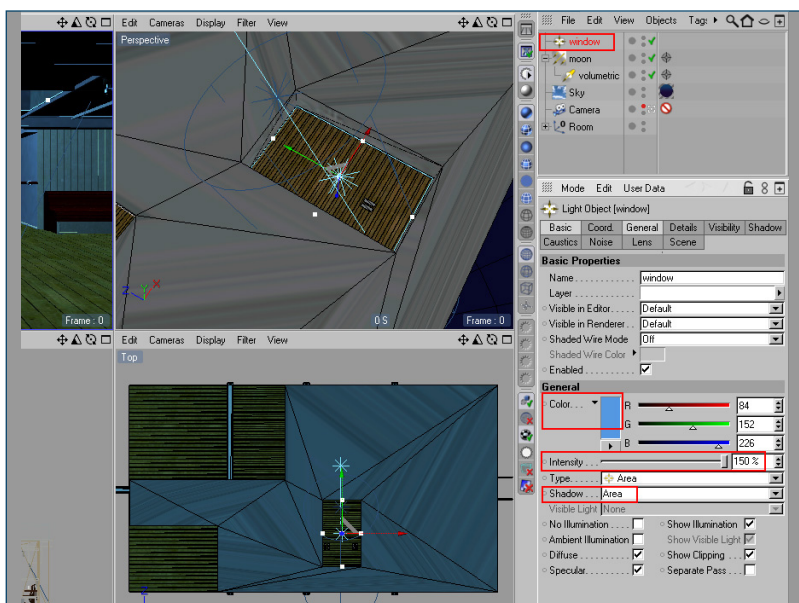
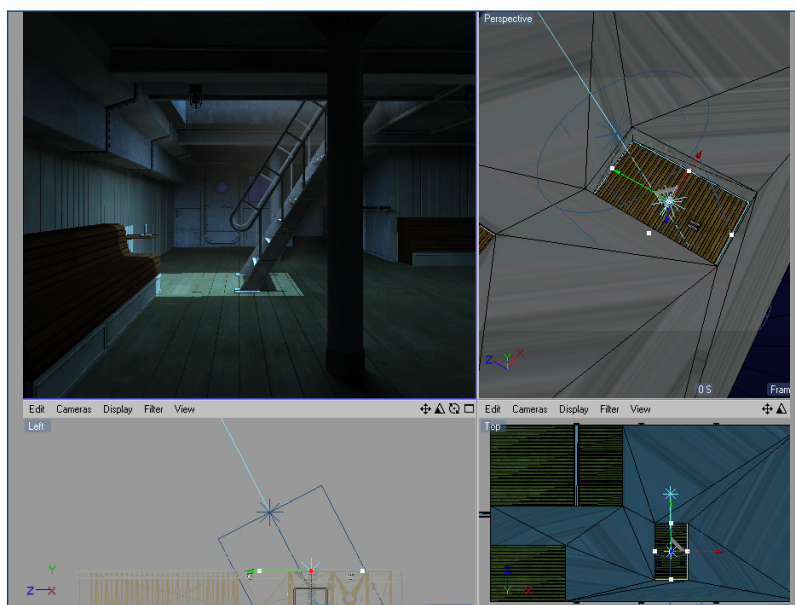


Fig 12

12. In the properties of Window light, change the Color, the Intensity, and the Shadow, as seen in Fig12.

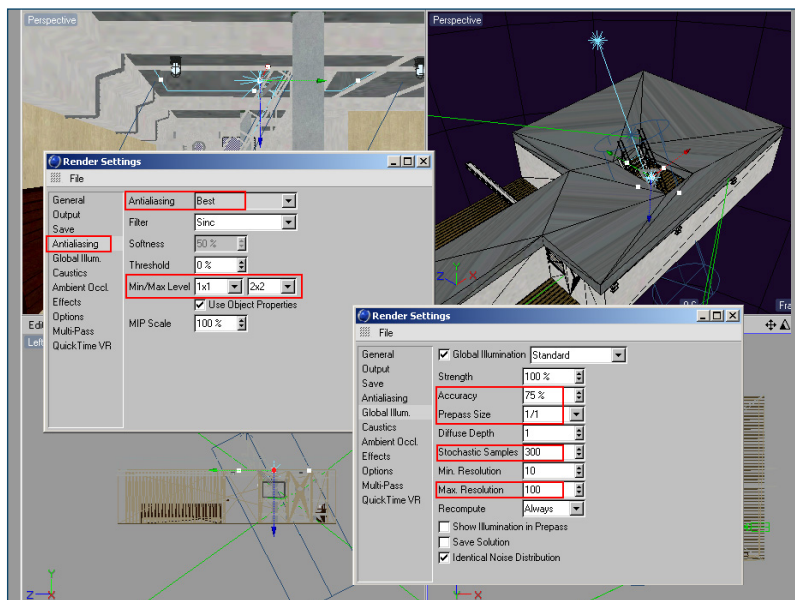
13. Let's make a render to see how it's going (Fig13). The light that we just added has the job of better spreading the light from the Moon. That was the last thing to do in order to complete our Lighting Rig, so we are now ready for the final render.

Fig 13



14. Before we render we need to enable the AA (antialiasing), and we need to increase the parameters of the GI (Global Illumination) (Fig14).

Fig 14



15. Fig15 shows the final render. It took about 1 hour and 30 minutes to render.

Fig 15



That is all for this month. I hope you've enjoyed following this part of the tutorial.

Originally designed & modelled by:
RICHARD TILBURY

Tutorial by:
**GIUSEPPE GUGLIELMUCCI
& NIKI BARTUCCI**

For more from this artist visit:

www.pikoandniki.com

Or contact them:

niki@pikoandniki.com







Chapter 04

ARTIFICIAL INTERIOR LIGHTING
ELECTRICAL

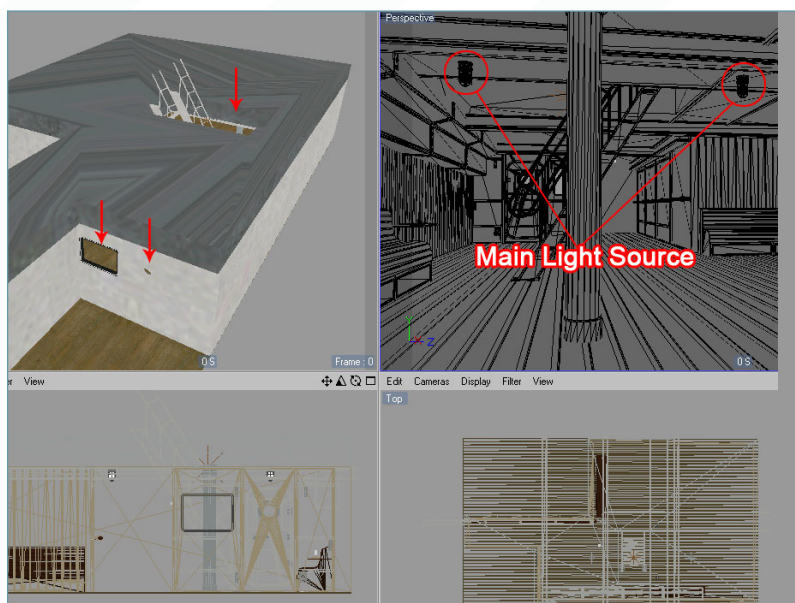


ENVIRONMENTAL LIGHTING ELECTRICAL

01. Hello and welcome back to this series of tutorials about Environmental Lighting. This month, we'll see how to illuminate our ship cabin using artificial light. First of all, open the scene and examine it (download can be found at the end of this tutorial; click on the Free Resources logo).

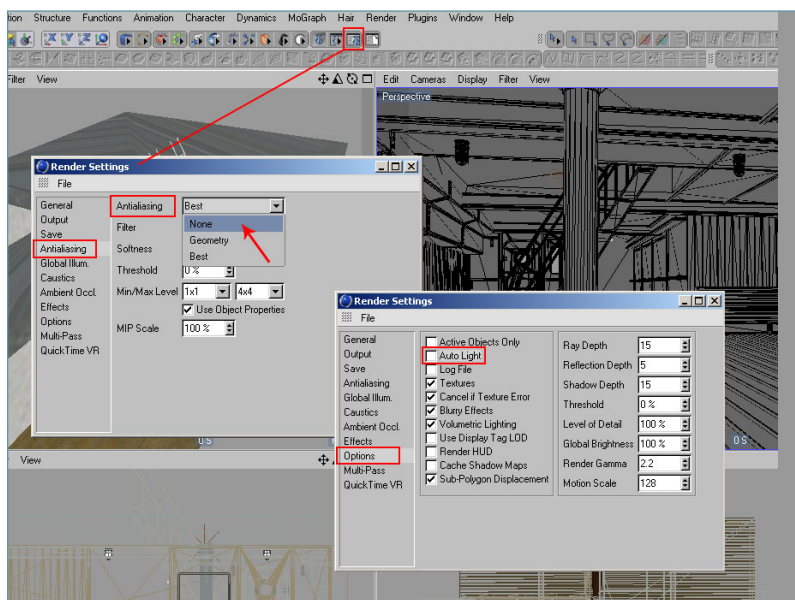
You can see from Fig01 that there are two light bulbs in the scene, which will be our main light sources. The scene is fully closed with just one opening on the ceiling and two windows in the door, as shown on the top-left of Fig01.

Fig 01



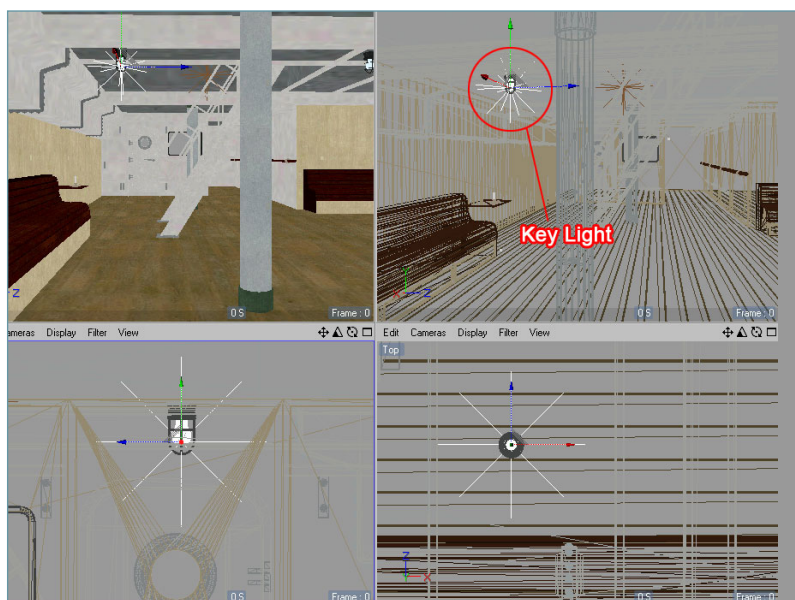
02. As usual, we will use Global Illumination for this tutorial, so I suggest that you disable the Antialiasing (AA) parameters and turn the Auto Light off, as seen in Fig02.

Fig 02



03. Create a Light and position it in the light bulb, as shown in Fig03. This Omni light will simulate the electric light generated from the light bulb.

Fig 03



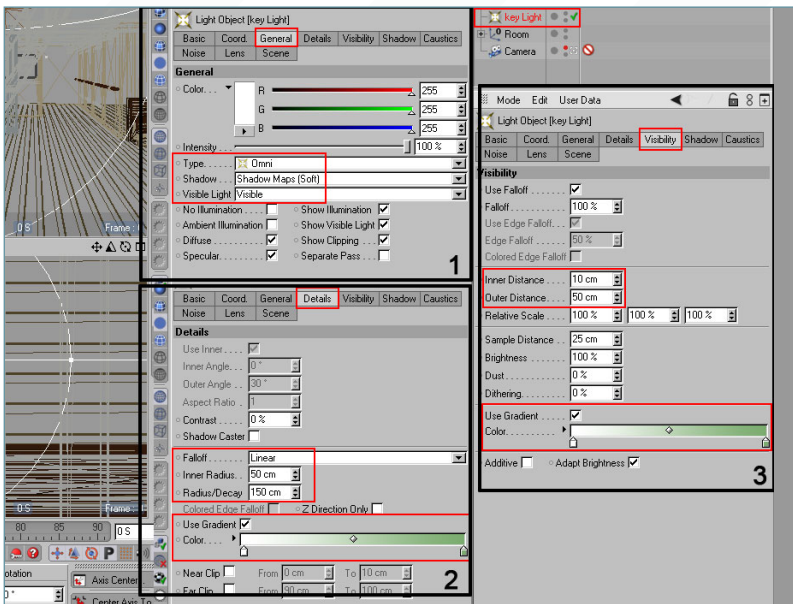


Fig 04

04. Select the Omni light that you just created and go into its properties (Fig04). The first stage, as seen in the top left of Fig04, shows the General control panel. Here you can modify the following parameters: Color, Intensity, Type, Shadow and Visible Light. In this case, the colour of the light will be white and its intensity will have a value of 100%. Choose the Shadow Maps for the shadow, and enable Visible Light. The second stage of Fig04 shows you the Details parameters. Here you can enable the Falloff and choose the Linear type. Modify the Inner Radius and Radius/Decay, as shown in Fig04. Lastly, enable Use Gradient and change the colours, as seen in Fig04. In stage 3, change the Inner Distance to 10cm, the Outer Distance to 50cm, and also enable also the Use Gradient parameter.

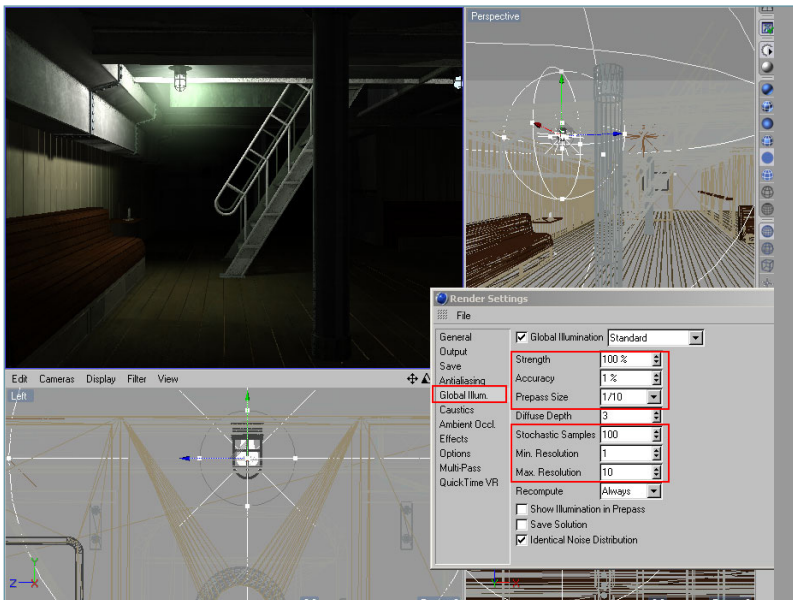


Fig 05

05. Open the Render Settings window, go into the Global Illumination control panel and decrease the parameters, as seen in Fig05. Then make a render, just to see how things are going.

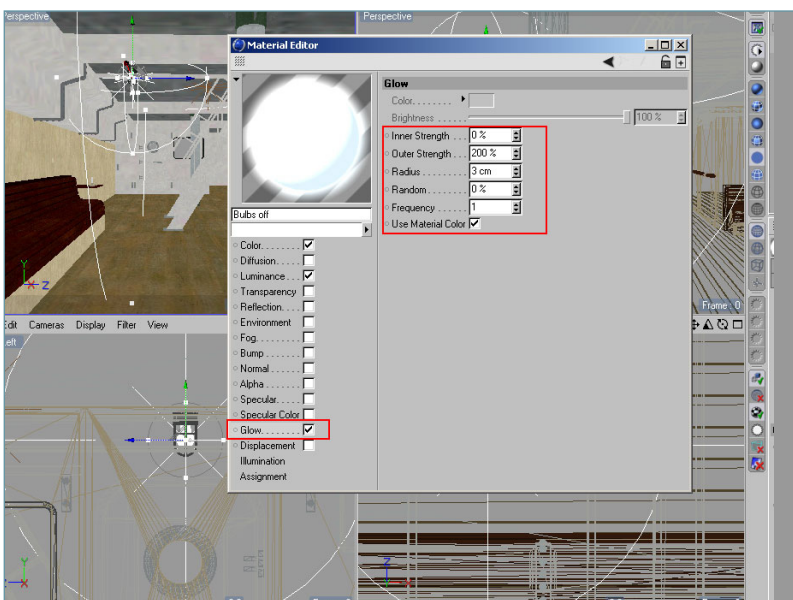
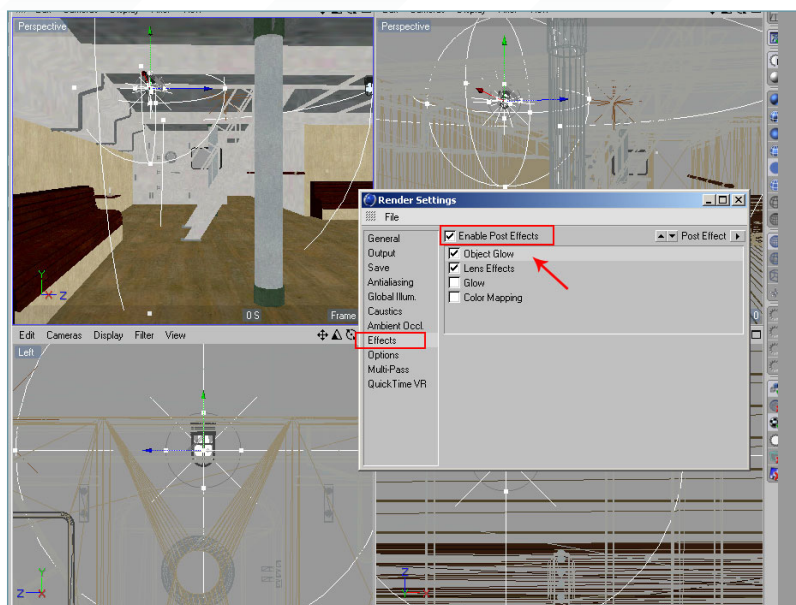


Fig 06

06. We can now add a Glow effect to the light bulb. Open the Material Editor of the "Bulbs" material from the Material Manager. Enable the Glow Channel and modify its parameters, as shown in Fig06.

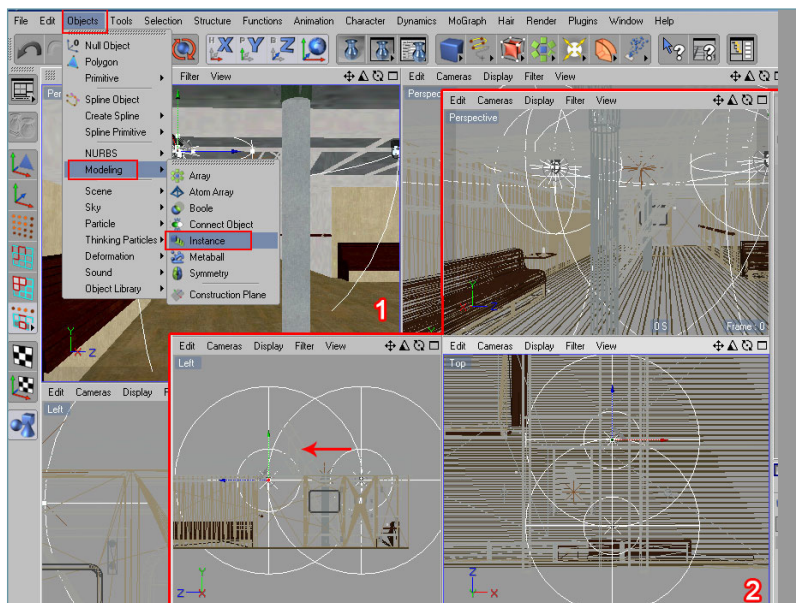
07. Open the Render Settings window and go into the Effects page. Here you must make sure that the Enable Post Effects parameter is enabled, as seen in Fig07.

Fig 07



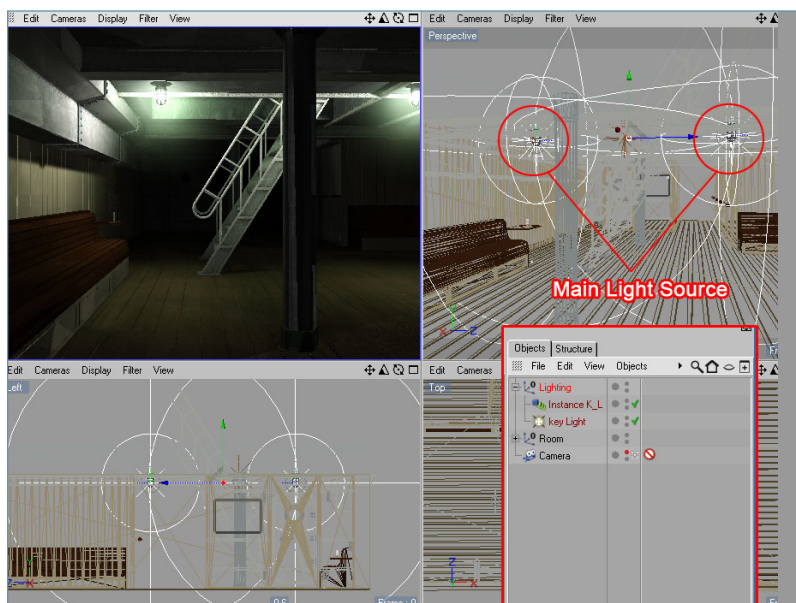
08. Now we have to add another light that simulates the second light bulb. We can either copy the Key light object and position it over the second light bulb, or we can create an "Instance" of the Key light. To create an Instance of an object, select the object in the Object Manager that you want to instance and choose Objects > Modeling > Instance (Fig08). An Instance object is a special duplicate of an object that does not have its own geometry. The Instance is a clone that will follow every change you apply to the original object. Only the position, scale and rotation are independent of the original. After you create the instance of the Key light, move it in correspondence with the second light bulb, as shown in the stage 2 of Fig08.

Fig 08



09. These two lights are the our main light source. They will simulate the electric light generated by light bulbs. Make a render to see how things are working out (Fig09). The cabin still looks dark because we are using low parameters of GI, and because we still have to add two lights that will help in better illuminating the cabin.

Fig 09



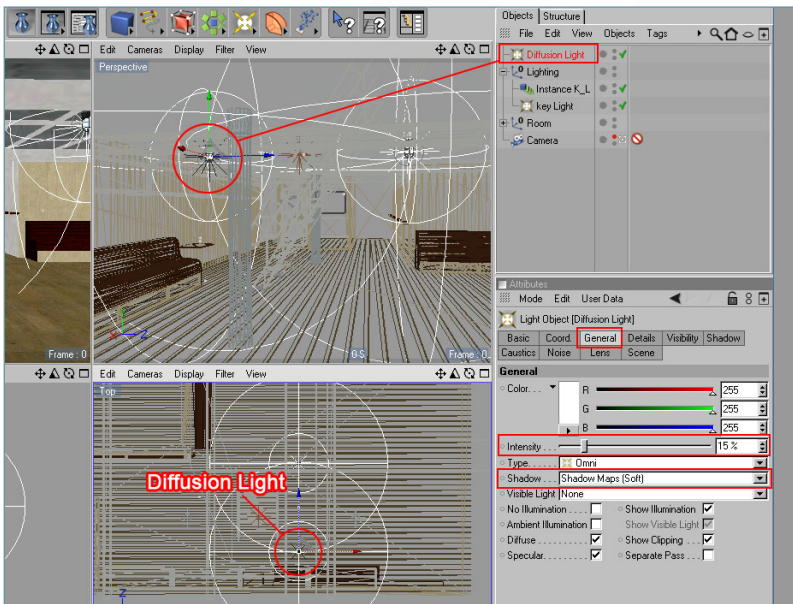


Fig 10

10. Create an Omni light and position it over the Key light, as seen in Fig10. In its General properties, decrease the Intensity to 15% and enable the Shadow Maps.

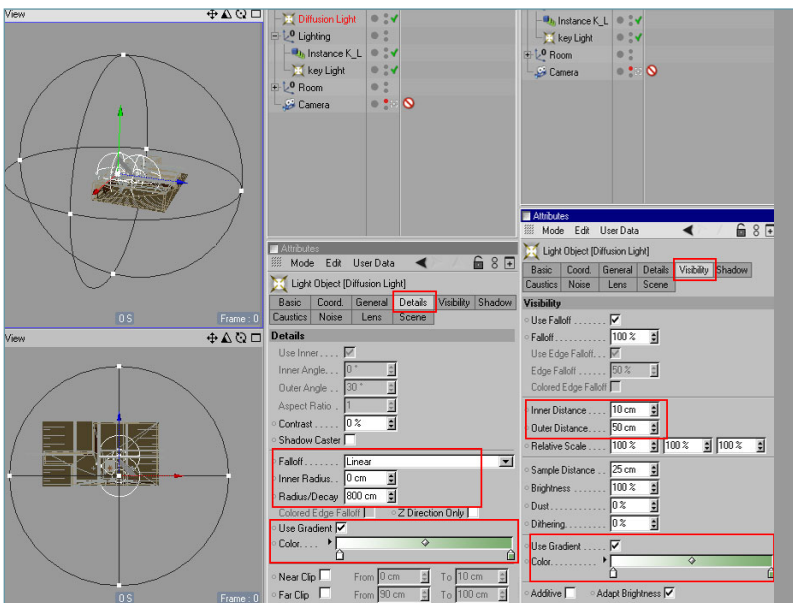


Fig 11

11. In the Details properties, enable the Linear Falloff and modify the Inner Radius and the Radius/Decay parameters, as shown in Fig11. Enable Use Gradient and change the default colours to the colours shown in Fig11. Now go into the Visibility properties where you need to change the Inner Distance to 10cm and the Outer Distance to 50cm. Then enable Use Gradient.

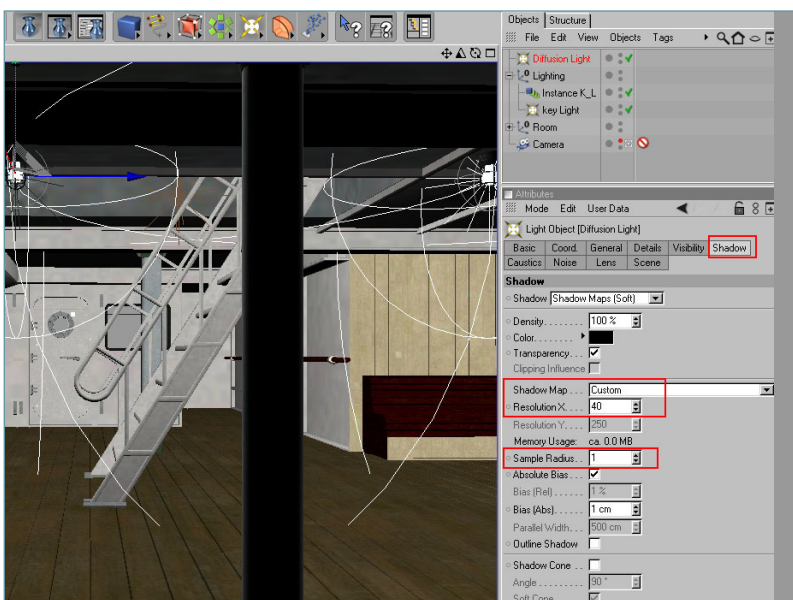
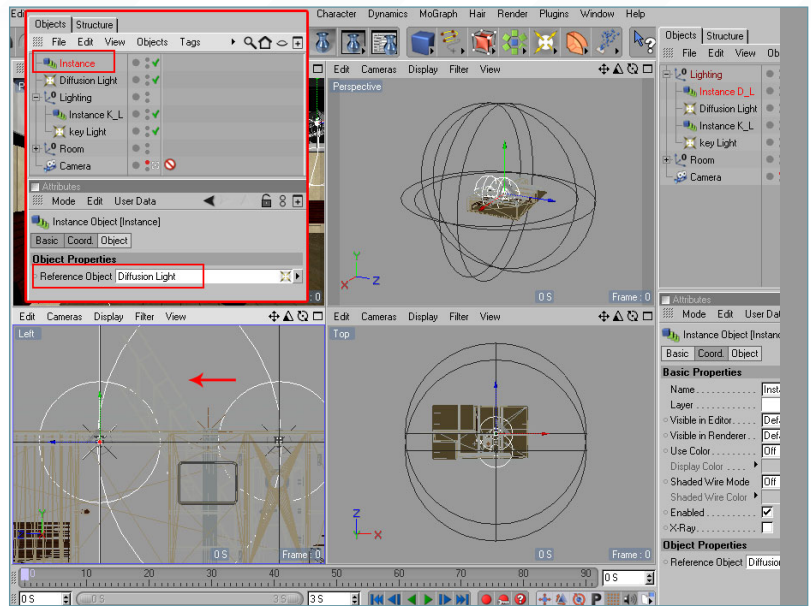


Fig 12

12. Still in the properties of Diffusion Light, go into the Shadow page and type 40 in the ResolutionX box. Decrease the Sample Radius to 1 (Fig12). This way the shadow will be slightly visible.

13. Create an Instance of Diffusion Light (Fig13). Position it in correspondence with the instance of the Key light (in correspondence with the second light bulb).

Fig 13



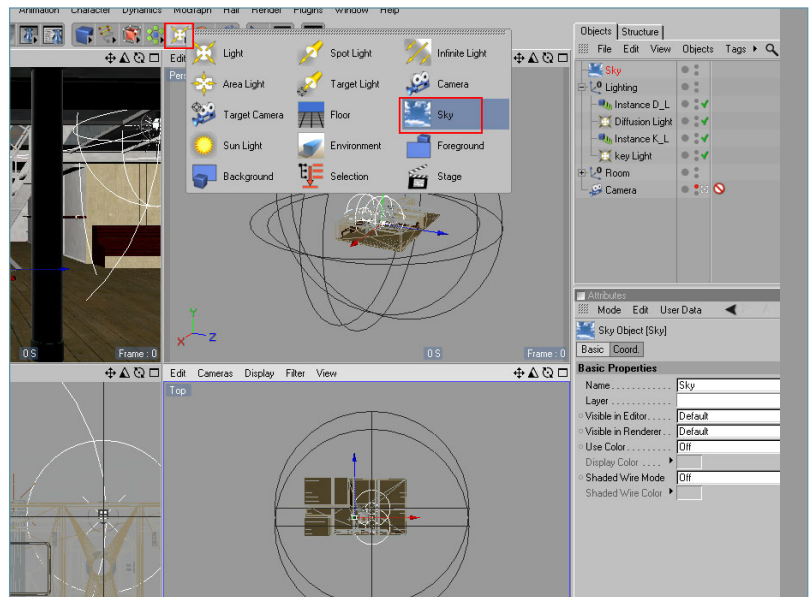
14. Make a render in the 3D view. The lighting seems to work well (Fig14).

Fig 14



15. Now add a Sky object (Fig15). The Sky is an infinitely large sphere, whose centre is the origin of the world coordinate system. We will apply a simple shader to this object.

Fig 15



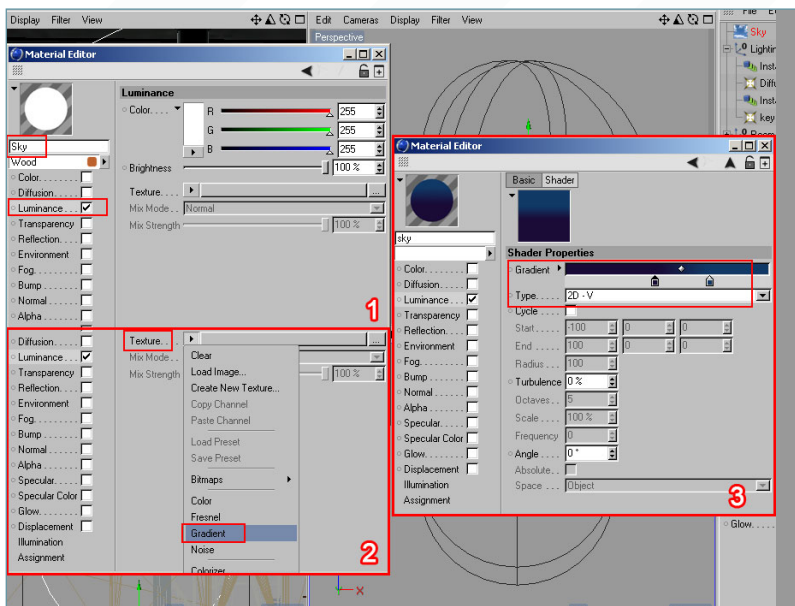


Fig 16

16. Create a new material and name it "Sky". Enable only the Luminance channel, as shown in stage 1 of Fig16. In the Luminance channel, load a Gradient into the Texture box (stage 2). Then change the Color and the Type of the gradient as seen in stage 3 of Fig16.

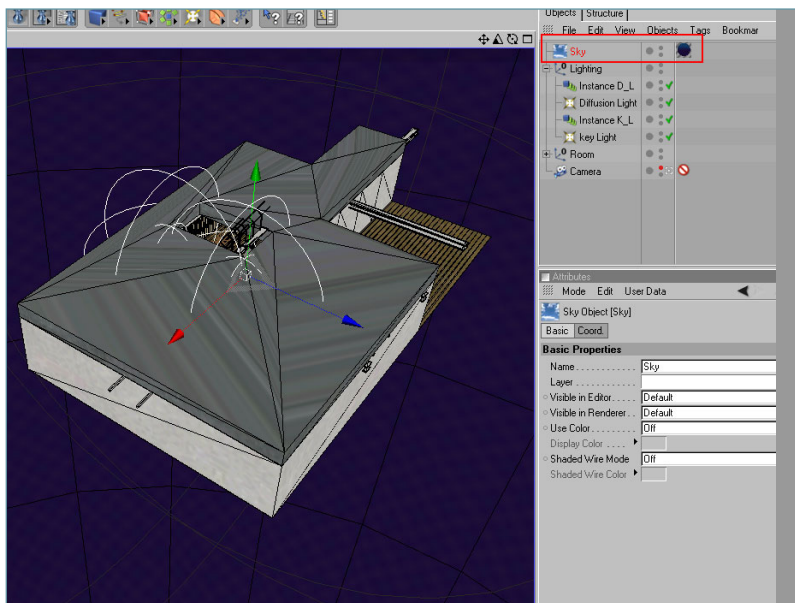


Fig 17

17. Apply the material to the Sky object (Fig17). This will give the scene a night mood.

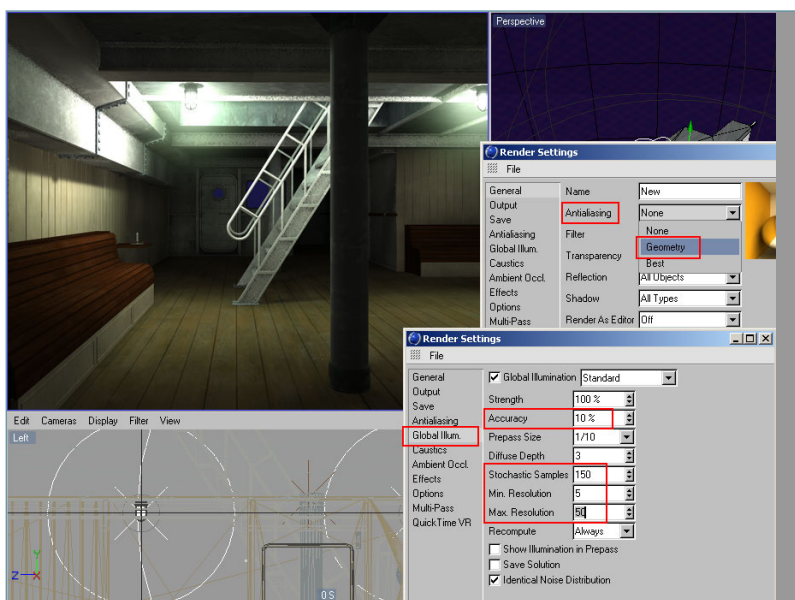


Fig 18

18. At this point we can make a render of medium quality. So, enable the Antialiasing and choose the Geometry type. In the Global Illumination page, increase the following parameters: Accuracy to 10%; Stochastic Samples to 150; Min. Resolution to 5; Max. Resolution to 50. Then make a render.

19. Well, it seems like we're done with our lighting now, so we are ready for the final render. Fig19 shows the final Antialiasing settings (left) and the final Global Illumination settings (right).

20. Fig20 shows the final render. That's all for this month! I hope you've enjoyed following this tutorial.

Fig 19

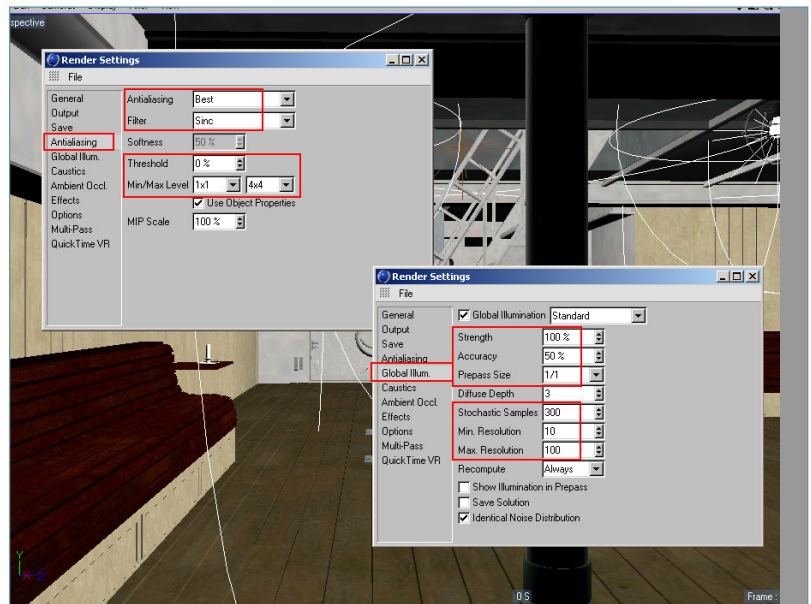


Fig 20



Originally designed & modelled by:

RICHARD TILBURY

Tutorial by:

**GIUSEPPE GUGLIELMUCCI
& NIKI BARTUCCI**

For more from this artist visit:

www.pikoandniki.com

Or contact them:

niki@pikoandniki.com







Chapter 05

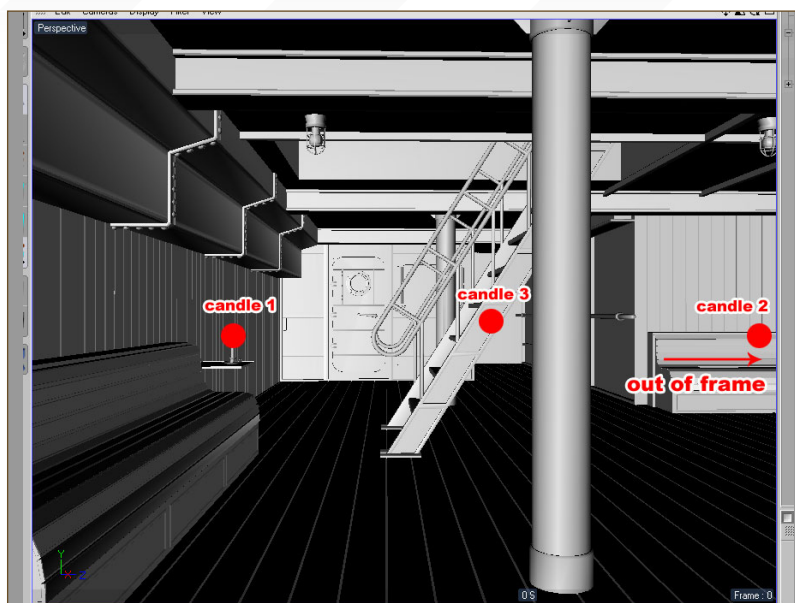
ARTIFICIAL INTERIOR LIGHTING
CANDLELIGHT



ARTIFICIAL INTERIOR LIGHTING CANDLELIGHT

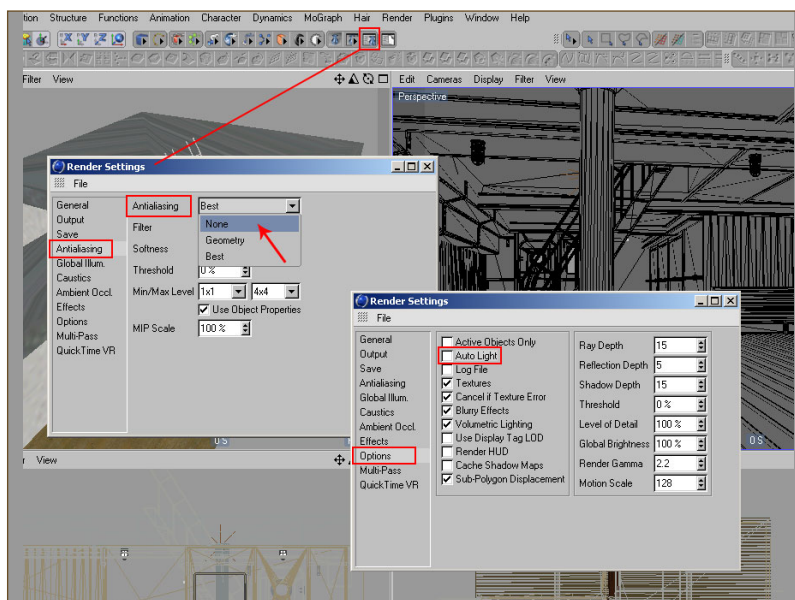
01. Welcome back guys! In this 5th tutorial we will see how to illuminate our ship cabin using candle light. First of all, download the scene which can be found at the end of this tutorial; click on the Free Resources logo. So, open the file and examine it. As you can see from Fig01, the candles are positioned where the red circles appear : one on the table near the left bench; one at the far right of the right sided bench (out of frame) and one at the end of the corridor on the left behind the steps.

Fig 01



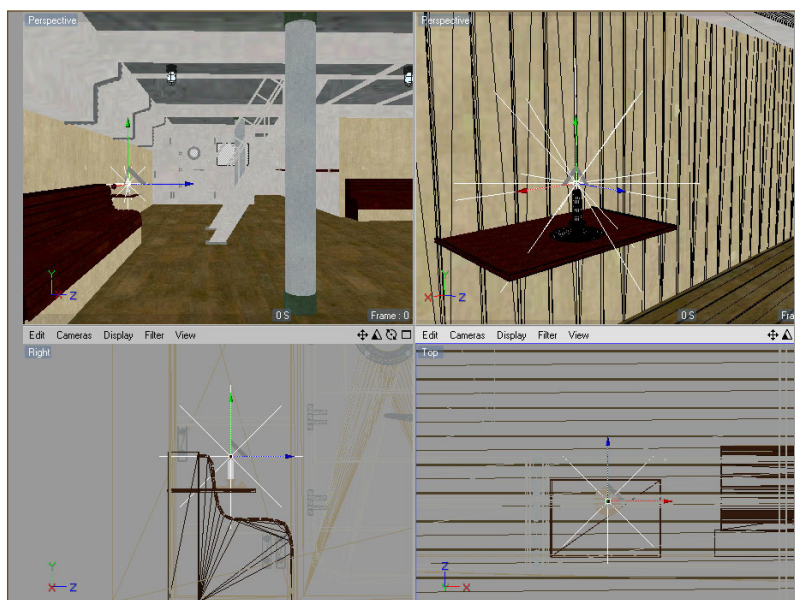
02. As usual, we will use the Global Illumination. I suggest you disable the Antialiasing (AA) parameters and turn the Auto Light off as seen in Fig02.

Fig 02



03. Create a Light and position it over the candle on the table near the bench at the right side of the cabin as shown in Fig03. This Omni will simulate the artificial light generated from the candle.

Fig 03



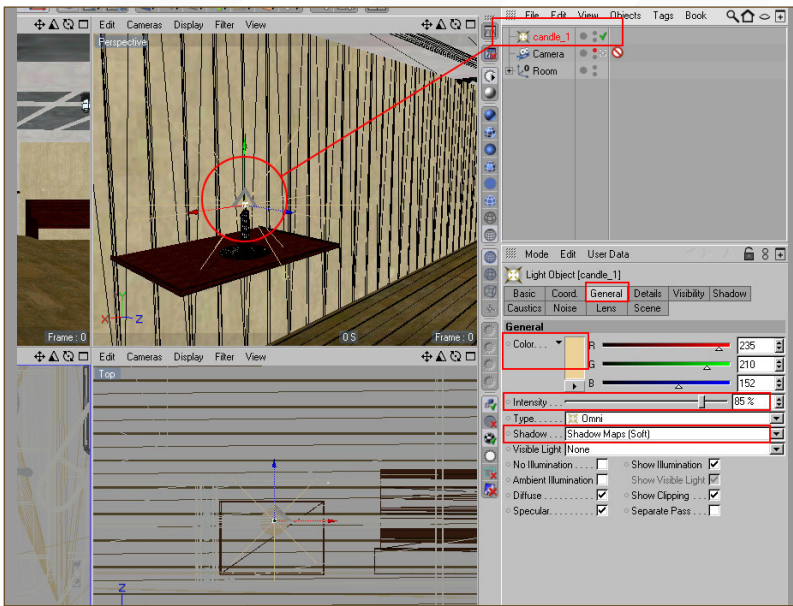


Fig 04

04. Select the Omni that you just created and go in its properties. In the General control panel, change the default white color to yellow as seen in Fig04. Decrease the Intensity of light to 85% and enable the Shadow Maps.

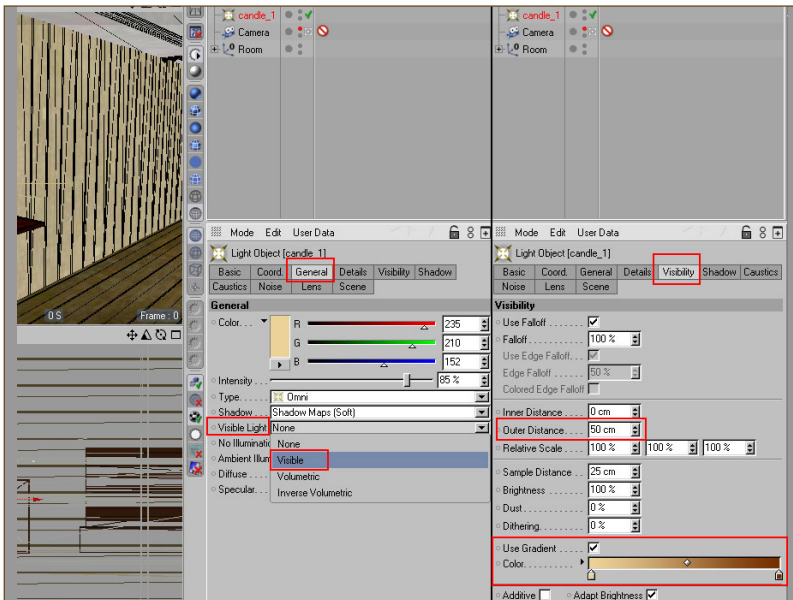


Fig 05

05. Still in the general control panel, enable the Visible Light as shown in Fig05. Now go into the Visibility panel and decrease the Outer Distance parameter to 50cm, then enable the Use Gradient option and modify the colors of the gradient as seen in the bottom right.

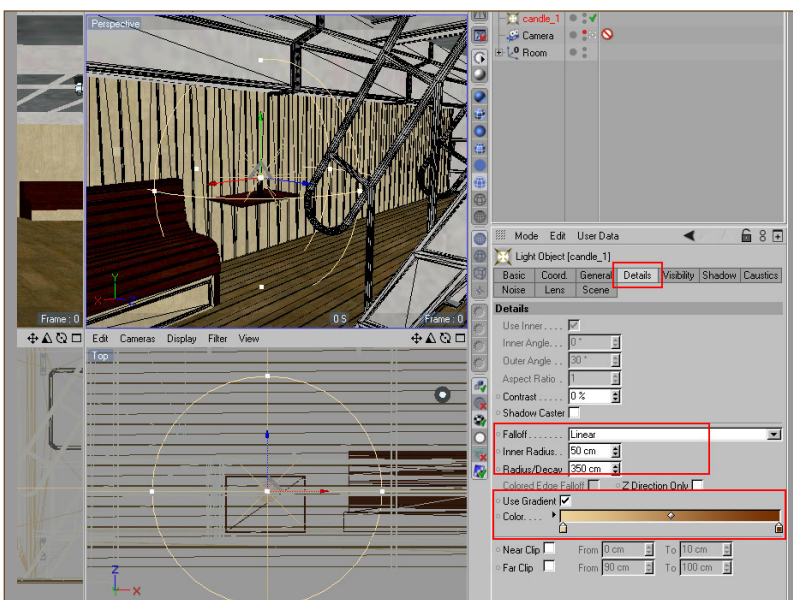
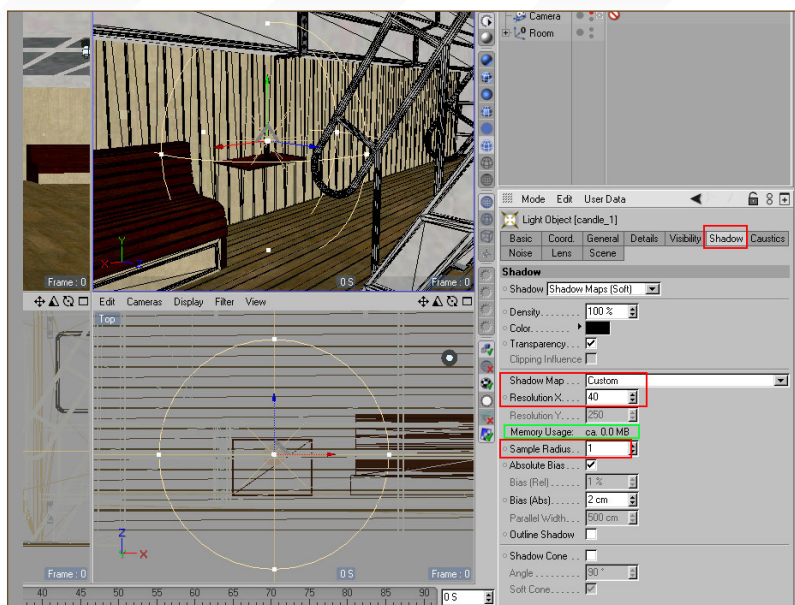


Fig 06

06. In the Details control panel, enable the Falloff and choose the Linear type as seen in Fig06. Change the Inner Radius value to 50cm and the Radius/Decay value to 350cm. Also enable the Use Gradient parameter and use the same colors we used before as seen in Fig06.

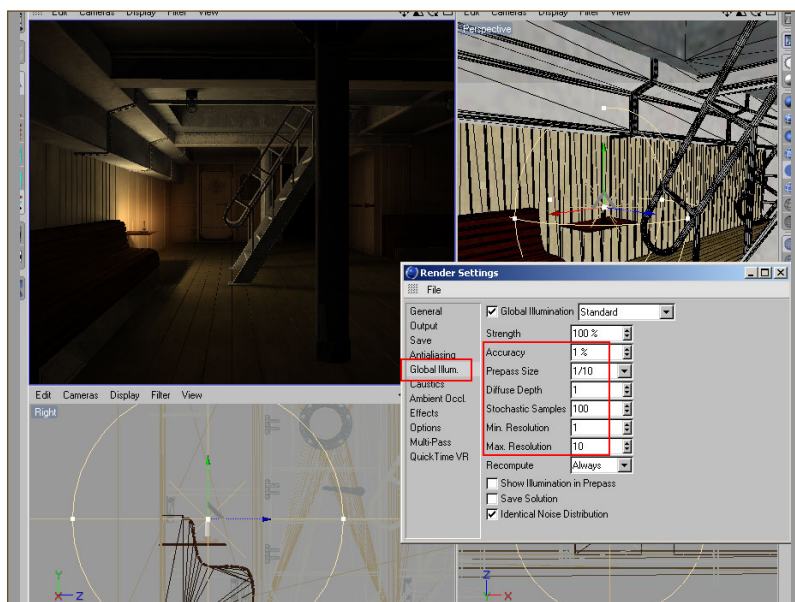
07. In the Shadow control panel, change the default Resolution of the Shadow Map to 40 (type into Resolution X box the number 40) as seen in Fig07. - The Memory Usage (highlighted in green) shows us how much memory will be used to compute this kind of shadow: in our case, you will notice that the memory used is about 0 Mb. If you increase the Resolution of Shadow Map, the Memory Usage will be higher. For example if you choose a Resolution of 2000, the Memory used to compute this kind of shadow will be about 192.0 Mb. – Decrease the Sample Radius value to 1 as shown on the right.

Fig 07



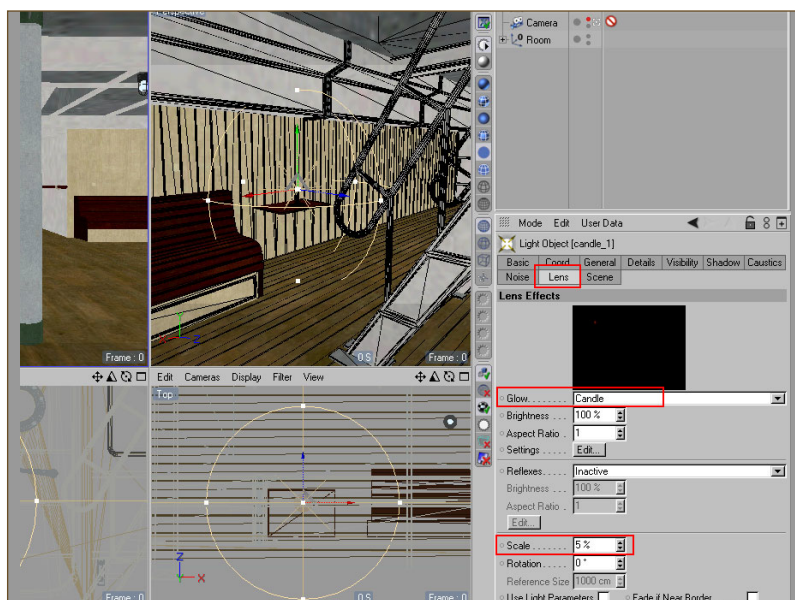
08. Time to render. Open the Render Settings window, go into the Global Illumination control panel and decrease the parameters as seen in Fig08. Then make a render just to check the progress. Not so bad.

Fig 08



09. Now we can add a Glow effect to the candle light. Still in the properties of candle_1 light, go into the Lens control panel. Here choose the Candle as the glow type. Reduce the Scale of the glow to 5% as shown in Fig09.

Fig 09



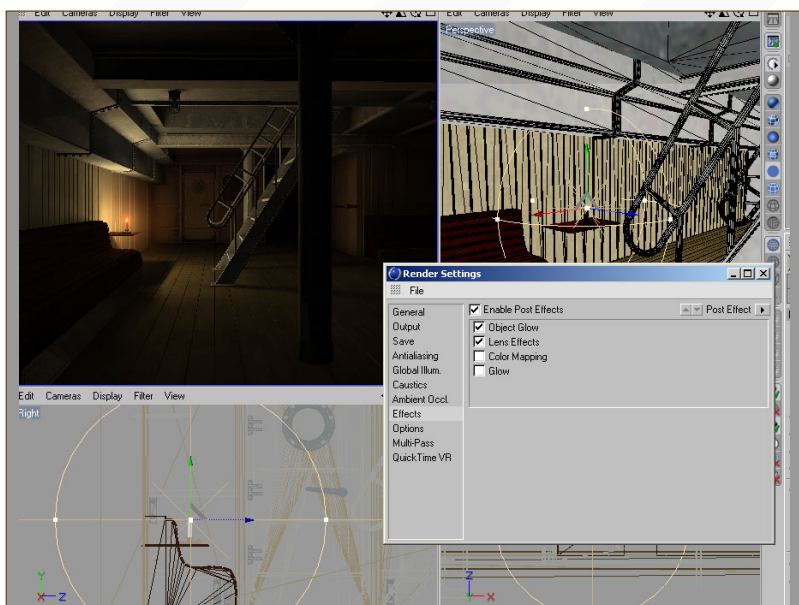


Fig 10

10. Open the Render Settings window and go into the Effect page. Here make sure that the Enable Post Effects parameter is enabled as seen in Fig10. Make a render. Here you can see that the effect has been added and it seems to successfully simulate the candle flame.

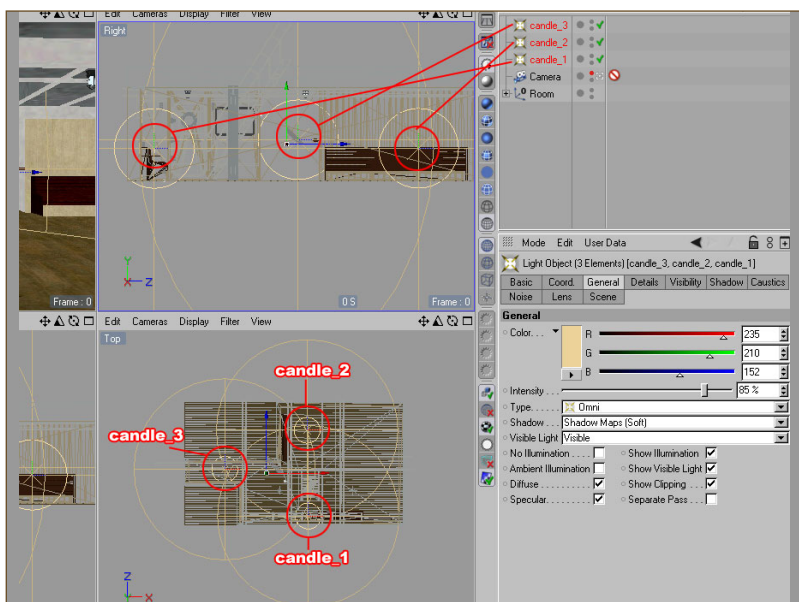


Fig 11

11. Once we have finished setting this light, we can make two copies, then positioning them as shown in Fig11. Since the flame effect will be visible just for candle_1 light, you may disable the glow of the two copies.

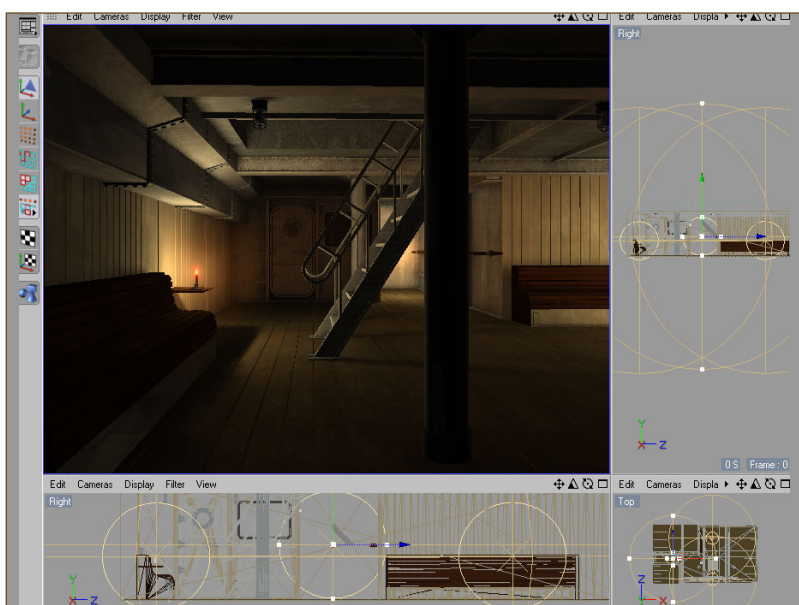
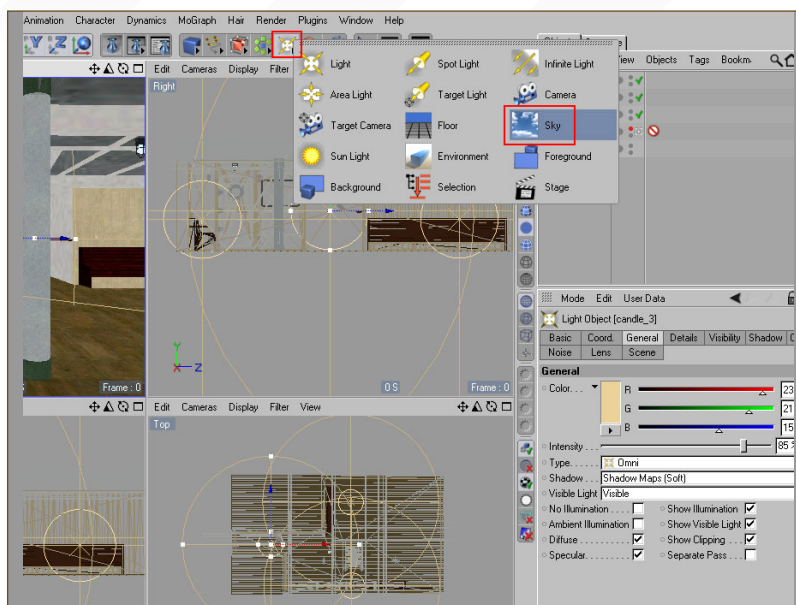


Fig 12

12. Make a render to see how it's going. Fig12.

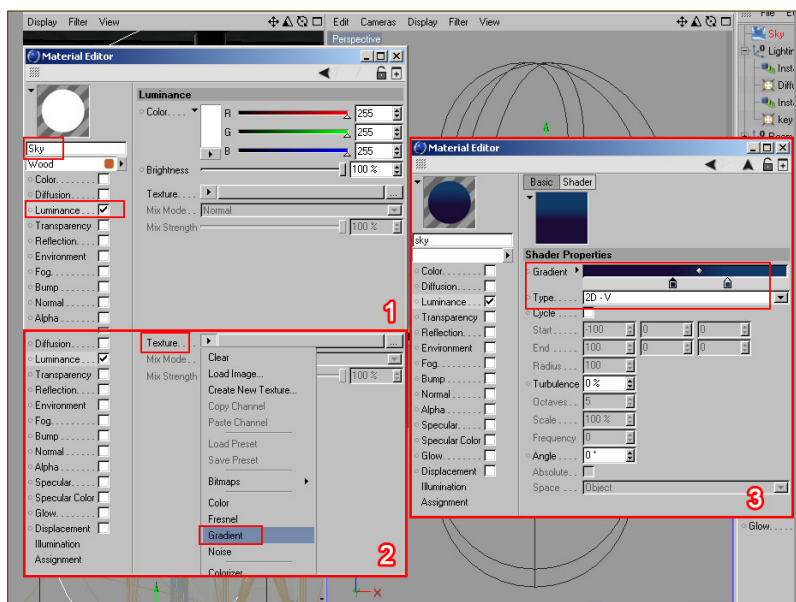
13. Now we'll add a Sky object as in the previous tutorials. Form the main menu go into Objects's menu > Scene > Sky. Fig13. Sky is an infinitely large sphere, whose center is the origin of the world coordinate system. We will apply a simple shader to this object.

Fig 13



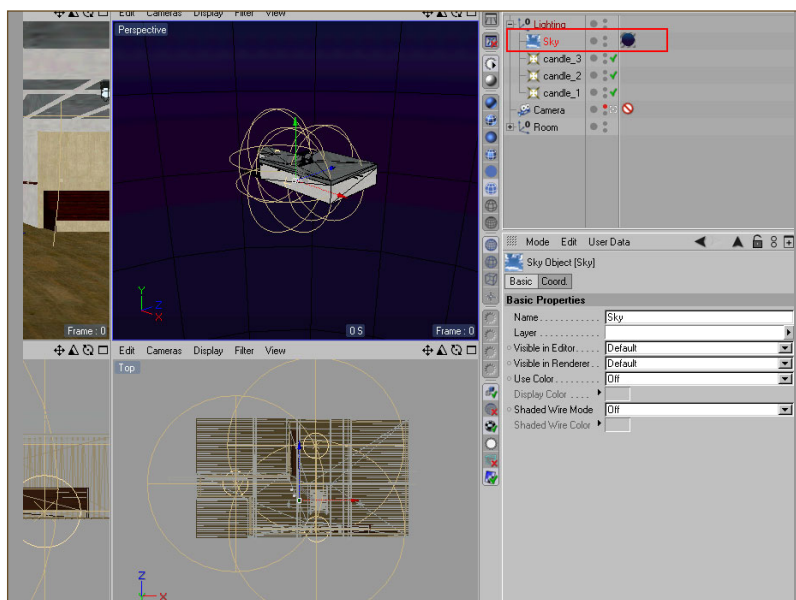
14. Create a new material and name it Sky. Enable only the Luminance Channel as shown in stage1 of Fig14. Into the Luminance channel, load a Gradient into Texture box (stage2). Then change the Colors and the Type of the gradient as seen in stage3.

Fig 14



15. Apply the material to the Sky object. Fig15. This will give to the scene a nocturnal quality.

Fig 15



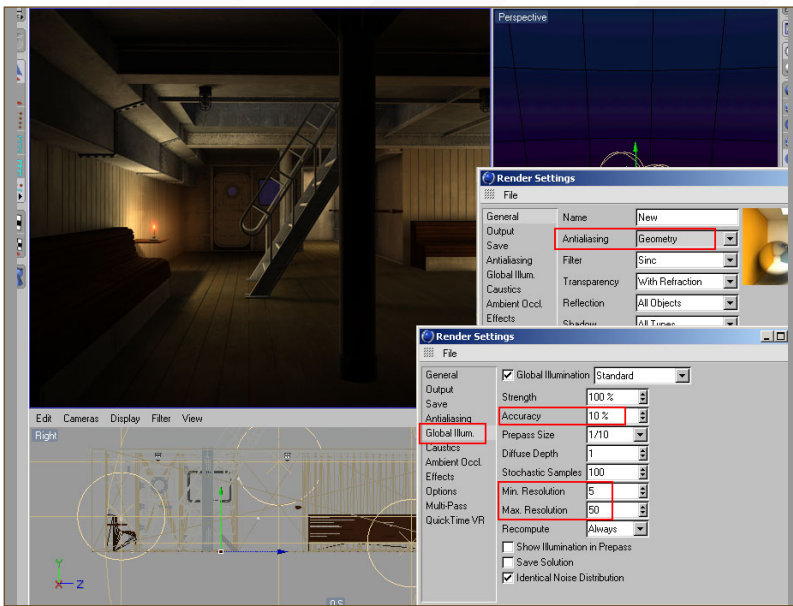


Fig 16

16. At this point we can make a render of an intermediate quality. So enable the Antialiasing and choose the Geometry type. In the Global Illumination page, increase the following parameters: Accuracy to 10%; Min. Resolution to 5; Max. Resolution to 50. Make a render (Fig16). You will now notice the Sky is visible through the windows.

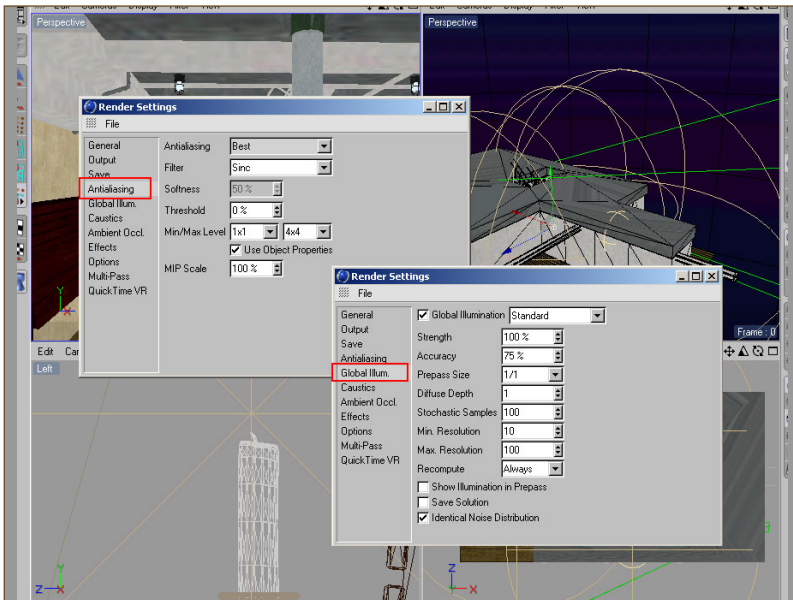


Fig 17

17. Well guys, it sounds like we are done with our lighting, so we are ready for the final render. Fig 17 shows the final Antialiasing settings (left) and the final Global Illumination settings (right).



Fig 18

18. Fig18 shows the final render. That is all for this month. I hope you enjoyed following the tutorial ...

Originally designed & modelled by:
RICHARD TILBURY

Tutorial by:
**GIUSEPPE GUGLIELMUCCI
& NIKI BARTUCCI**

For more from these artists visit:

www.pikoandniki.com

or contact

niki@pikoandniki.com





Chapter 06

ARTIFICIAL INTERIOR LIGHTING
UNDERWATER



ARTIFICIAL INTERIOR LIGHTING UNDERWATER

Welcome back guys to this series of tutorials about Environmental Lighting. In this 6th tutorial we'll see how to create an artificial lighting situation for our ship cabin scene under a particular environmental condition : underwater. First of all, download the scene, it can be found at the end of this tutorial; click on the Free Resources logo.

1. I decided to illuminate the scene via three electric torches that the scuba divers use during their dives. (You may look for references on google.) This time we won't use the Radiosity because of the way the light reacts when it penetrates the water. I chose to put the three torches above the staircase, so our Main Light Source will be positioned as shown in Fig01.

2. As we did in the previous tutorials, in the Render Settings control panel, disable the AA and the Auto light, thus minimizing the render time. We'll enable the Antialiasing when we are ready for our final renders (Fig 02).

3. Create an Area Light, it can be found in the Objects menu > Scene > Area Light. Position the Area Light over the opening in the ceiling, making sure that the shape of the light coincides with the bottom edges of the opening as shown in Fig03. Create a Null Object and name it Lighting, then drag in the Area Light. This object will contain all the lights that we will add in the scene.

Fig 01

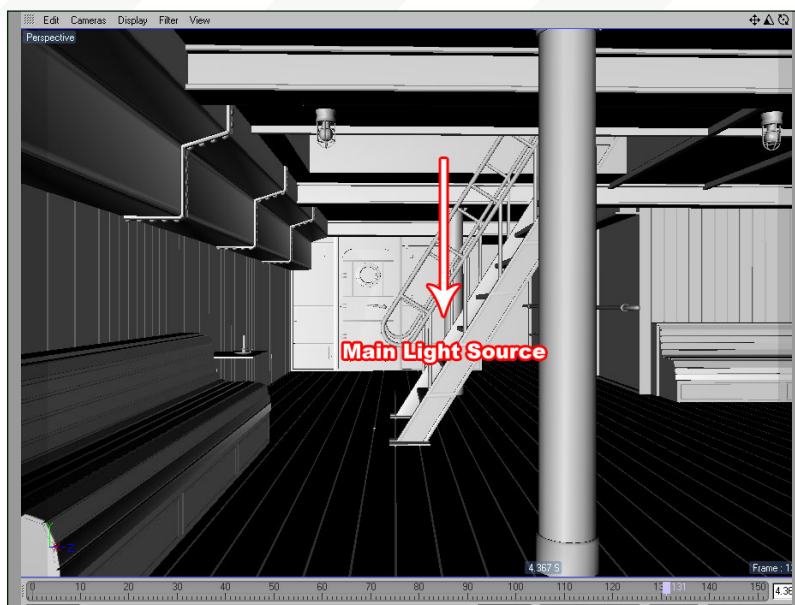


Fig 02

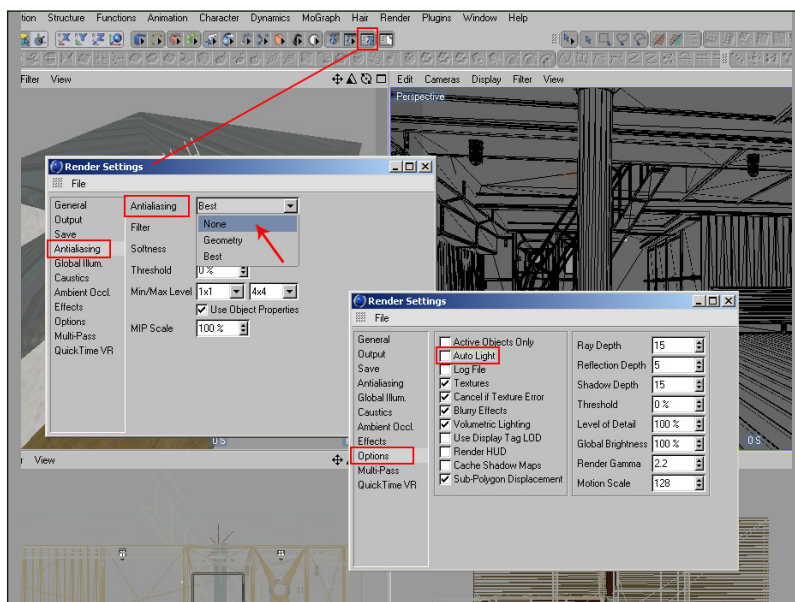
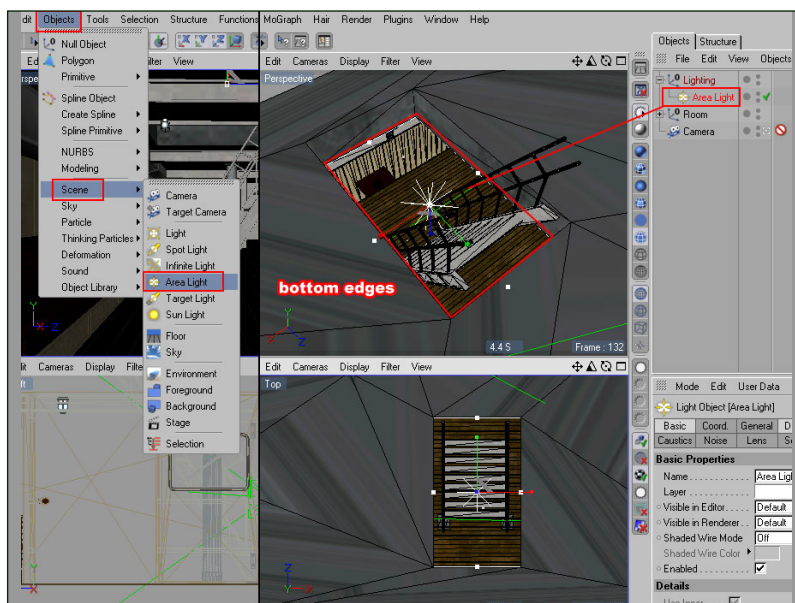


Fig 03



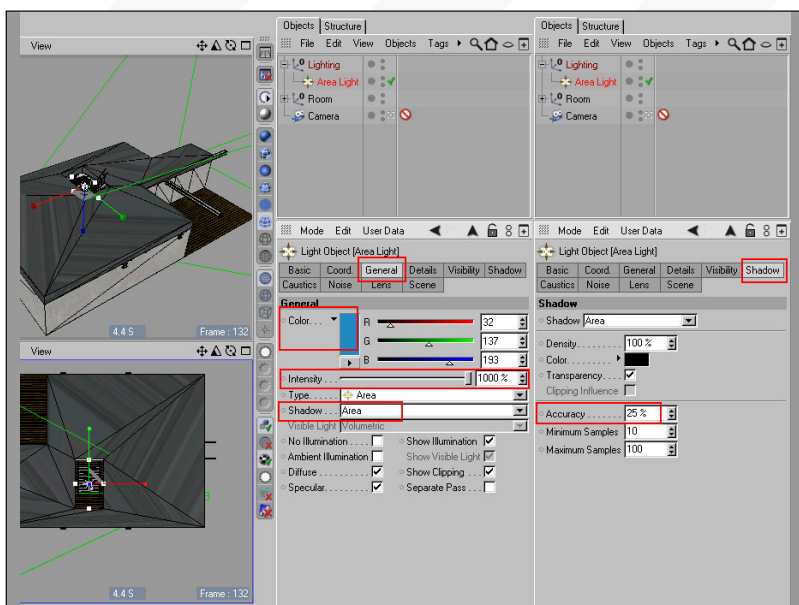


Fig 04

4. In the properties of Area Light, change the white default color to blue as seen in Fig04. Increase its Intensity to 1000% and select the Area Shadow. Go then into the Shadow control panel, and decrease the Accuracy to 25%.

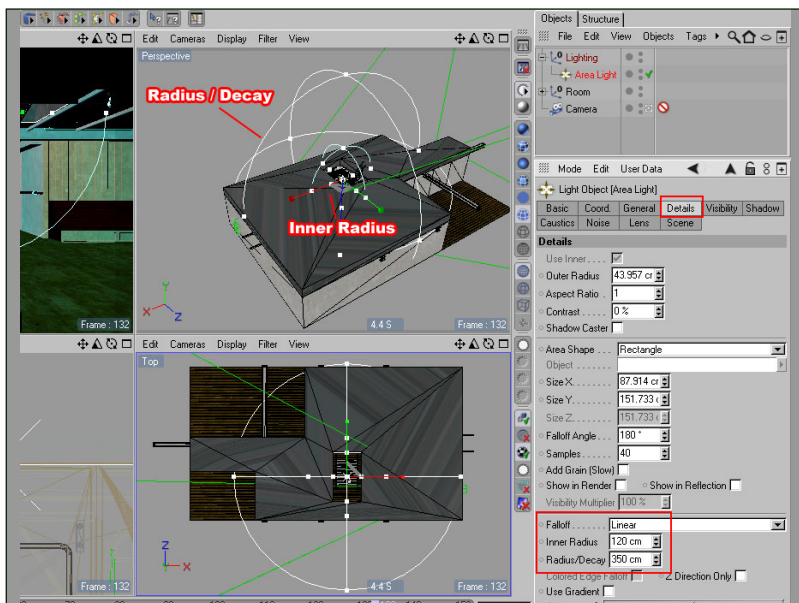


Fig 05

5. Still in the properties of Area Light, go into the Details control panel and enable the Falloff Linear. Modify the Inner Radius and the Radius/Decay as shown in Fig05. The Falloff allows the light not to have a continuous, linear brightness, as is the case in reality. In our case, the Inner Radius value is 120cm, this means that from 0cm to 120cm the brightness of the light remains constant. Outside of this boundary is where the Inner Radius falloff begins. The range between the Inner Radius and the Radius/Decay is where the brightness of the light changes from 100% to 0%. This Radius/decay indicates the maximum range that will be illuminated by the source light.

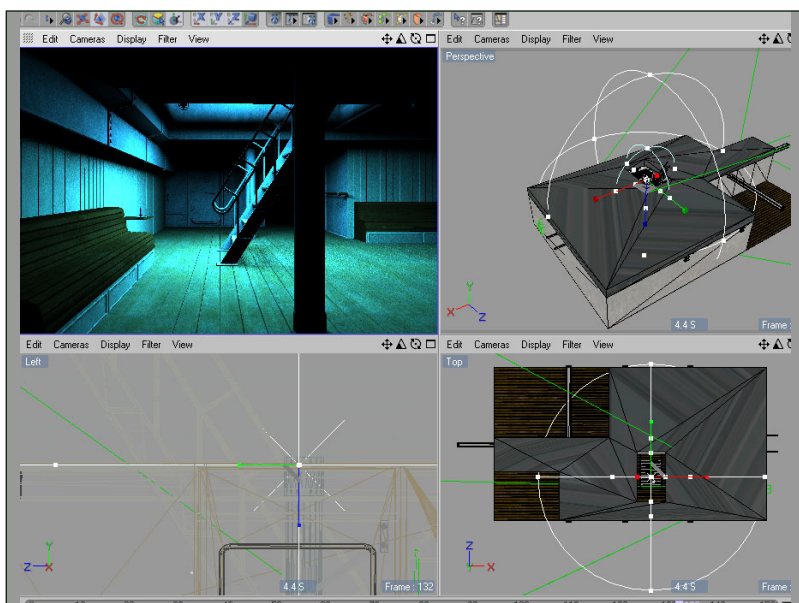
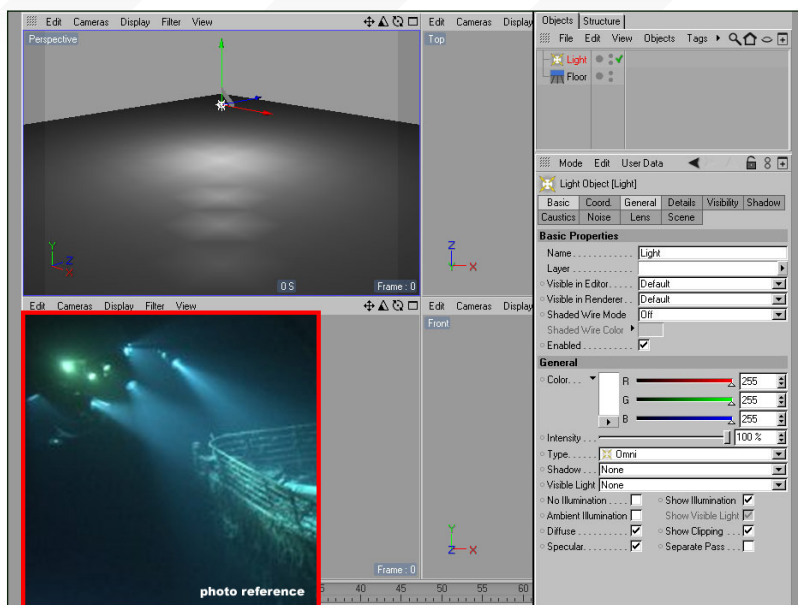


Fig 06

6. Make a render in the perspective view. Later we will assign a material to this light that will allow us to obtain the Caustic effect, which in this case will be "fake". (Fig06)

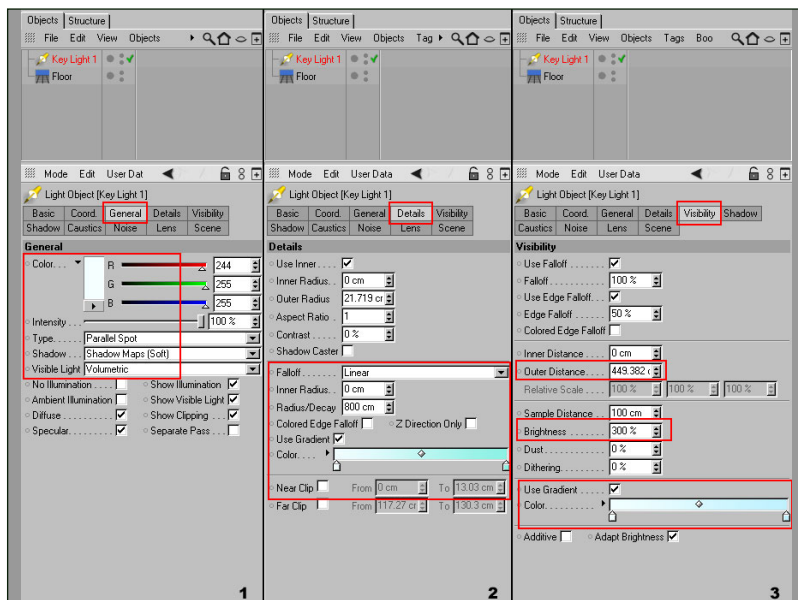
7. Now we have to create the light that simulates the electric torch of scuba diver. I found on the net the photo that you can see on the bottom left of Fig07. Here you can see from the image, this kind of light creates two visible bundles, a central bright cone and one more diffused, less bright. We will get the same result by using two lights. (I will do that in a new file, thus it will be more comprehensible.) So create a light as seen in Fig 07.

Fig 07



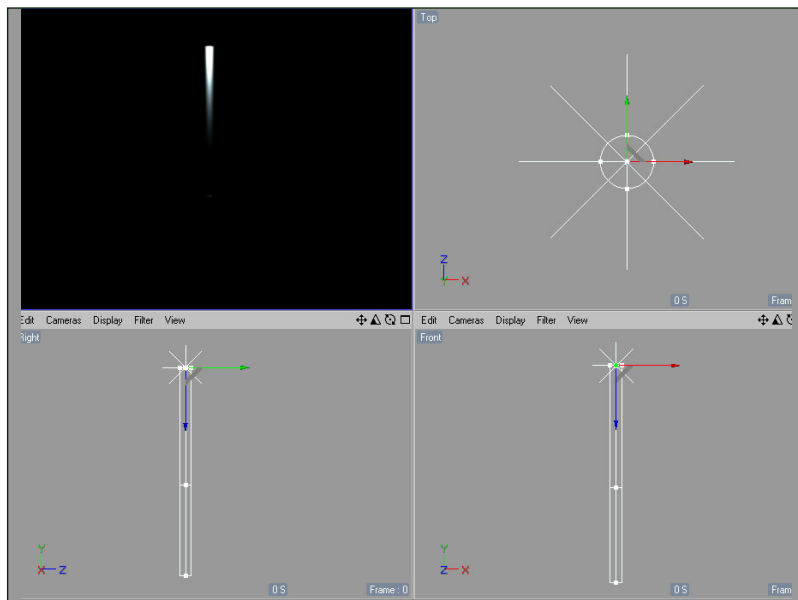
8. Go into properties. In the General control panel, change the white color to a very bright blue. Choose the Parallel Spot as Type of light, Shadow Maps as Shadow, Volumetric as Visible Light. (Stage1). In the Details control panel, Enable the Falloff, define the range of illumination so modify the Radius/Decay value as seen in Fig 08. Enable the Use Gradient option and change the colors of the gradient. (Stage 2). In the Visibility control panel, modify the Outer Distance, increase the Brightness to 300% and enable Use Gradient option. (Stage 3).

Fig 08



9. Make a render just to see how it appears. Fig09. Compare it with the photo reference to see if we have succeeded in recreating, or better still, in approaching the effect a real light would have. (Feel free to carry out your own tests).

Fig 09



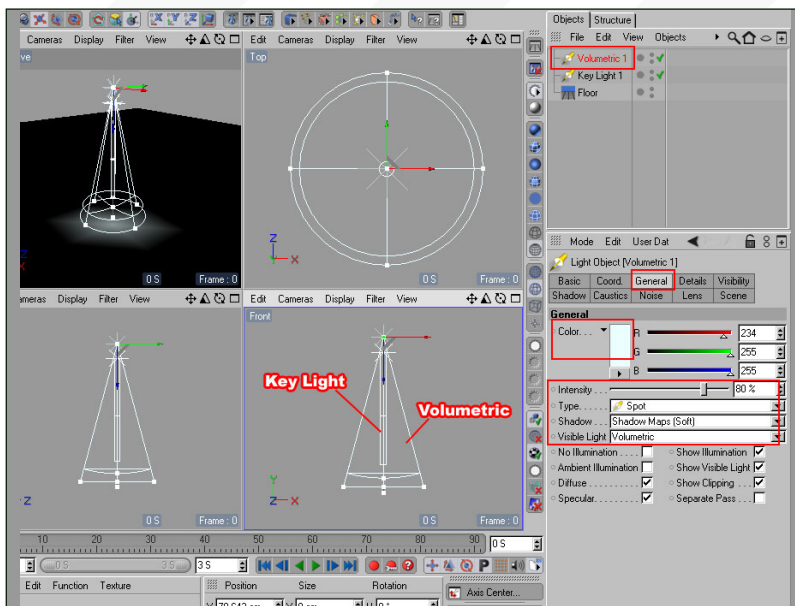


Fig 10

10. Now create a Spot light. Position it just over the Key Light 1 as shown in Fig10. The color of this light will be bright blue. Decrease its Intensity to 80%, select the Shadow Maps and select the Volumetric as Visible Light.

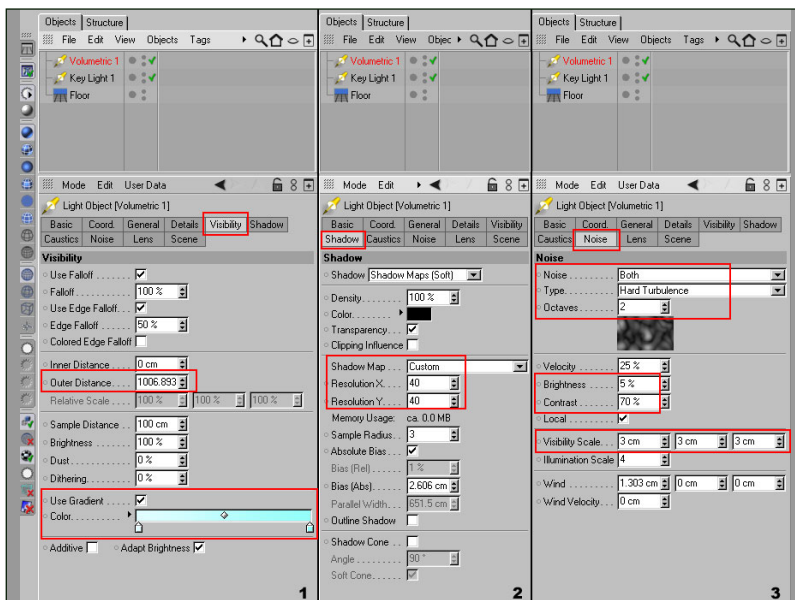


Fig 11

11. In the Visibility control panel, modify the Outer Distance, enable the Use Gradient option then change the colors of the gradient as seen in stage 1 of Fig11. In the Shadow control panel, change the default resolution to Custom with a value of 40. (Stage 2). In the Noise control panel, enable the Noise, then change the type and decrease the Octaves. Give the Brightness a value of 5% and decrease the Contrast to 70%. Reduce the Visibility Scale to 3cm. Stage 3.

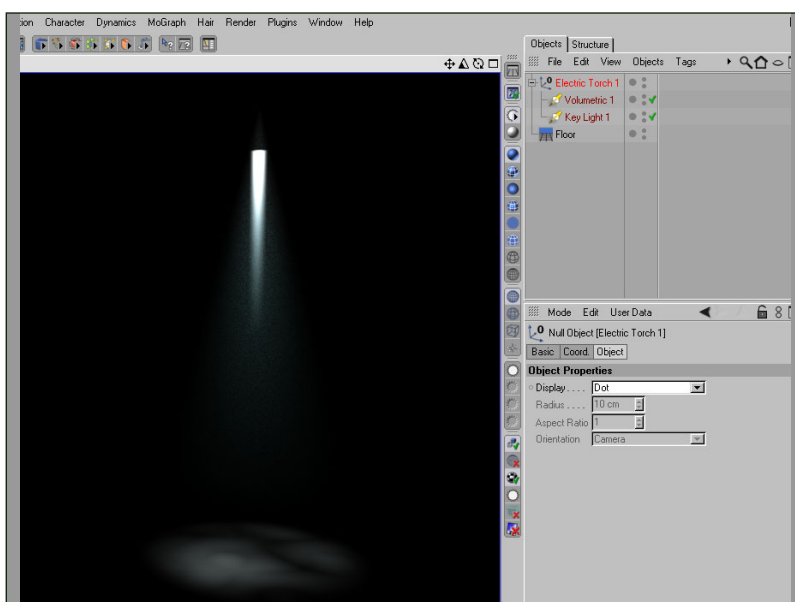
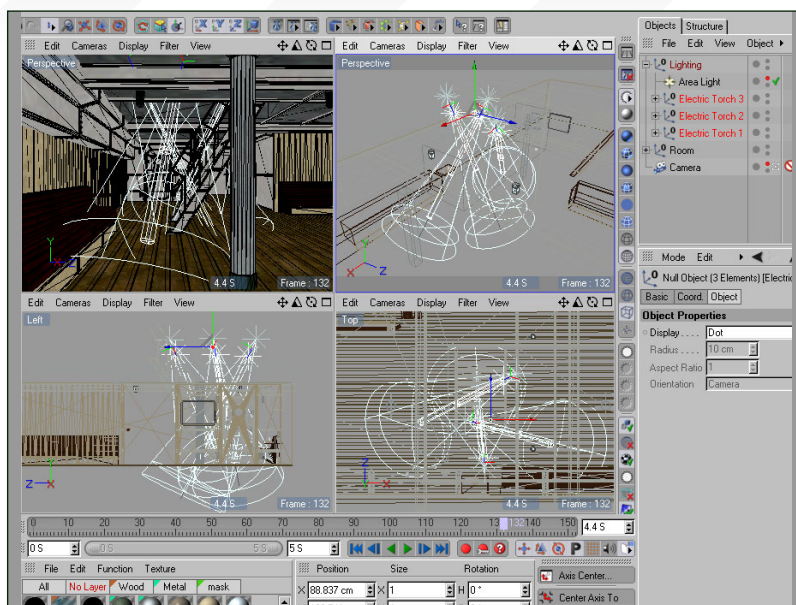


Fig 12

12. Make a render. Fig12. Create a Null Object and name it Electric Torch 1, then drag in the two lights that I named Key Light 1 (Parallel Spot) and Volumetric 1 (Spot).

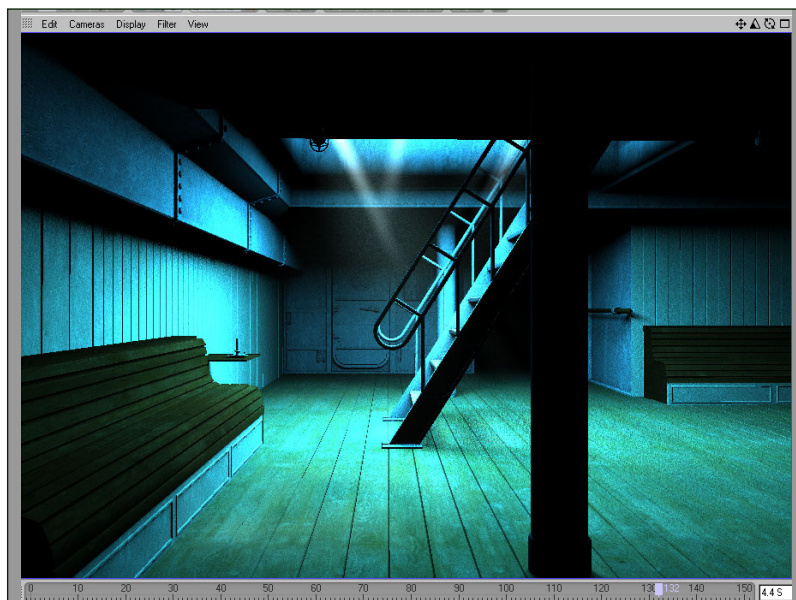
13. Position the Electric Torch 1 as you like and then make two copies of this object. Position the Electric Torches as you see fit.

Fig 13



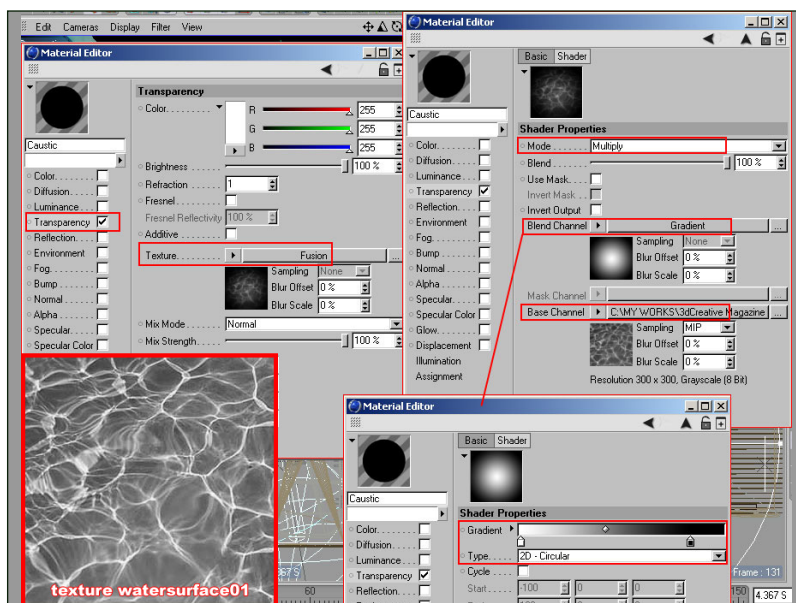
14. Make a render. Fig14. Now the Area Light seems to be very strong and it makes the other lights less visible, but don't worry about this now, the Area Light will become less bright when we apply the material that I mentioned earlier.

Fig 14



15. So, in the Material Manager, create a new material and enable only the Transparency channel. Fig15. In the Texture load the Fusion shader. This shader will allow you to combine two textures with a mask using the modes standard in photo editing applications. In the Shader properties, load the texture "watersurface01" (that you downloaded with the scene) as Base Channel. In the Blend Channel load the shader Gradient. The Gradient will be 2D - Circular. Choose Multiply as Mode.

Fig 15



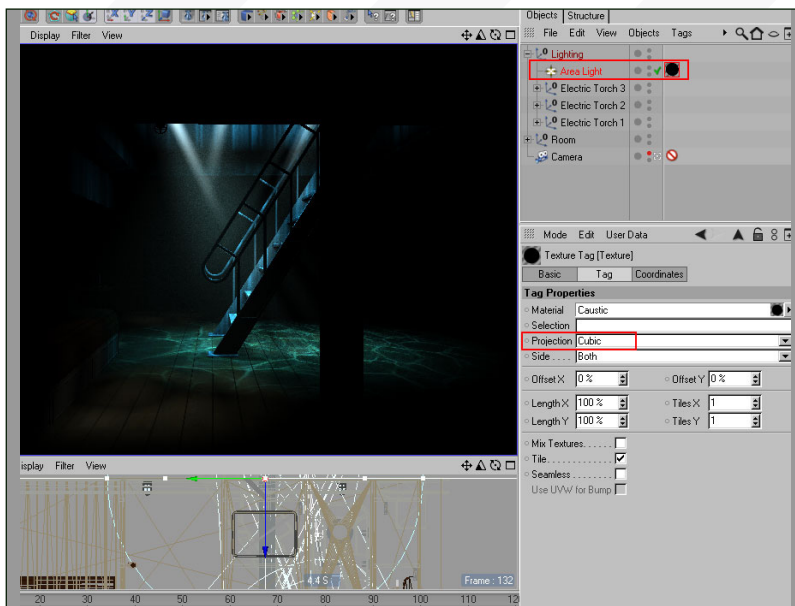


Fig 16

16. Apply the material to the Area Light, assign the Cubic projection. Make a render. Fig16. Now you can see from the image, the light projects the shader onto the floor.

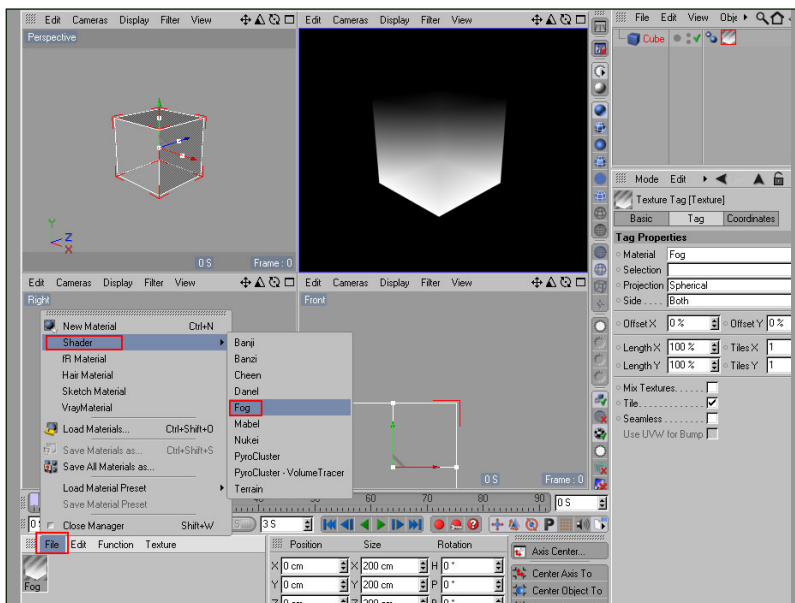


Fig 17

17. Another element that makes this scene like an underwater scene is the Fog. As you know, Cinema 4d has its own shaders so we may use the Fog shader here. Create a cube then in the Material Manager, load the shader Fog. Assign the material to the cube as seen in Fig17.

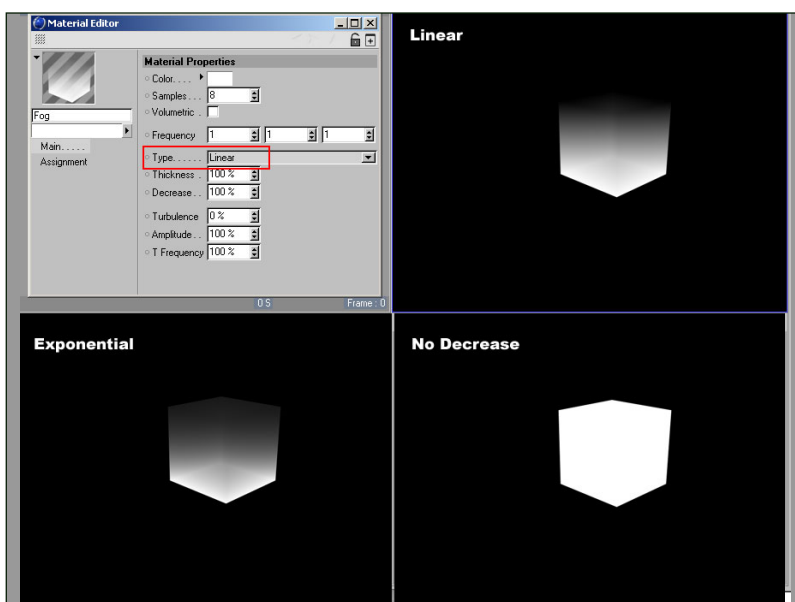
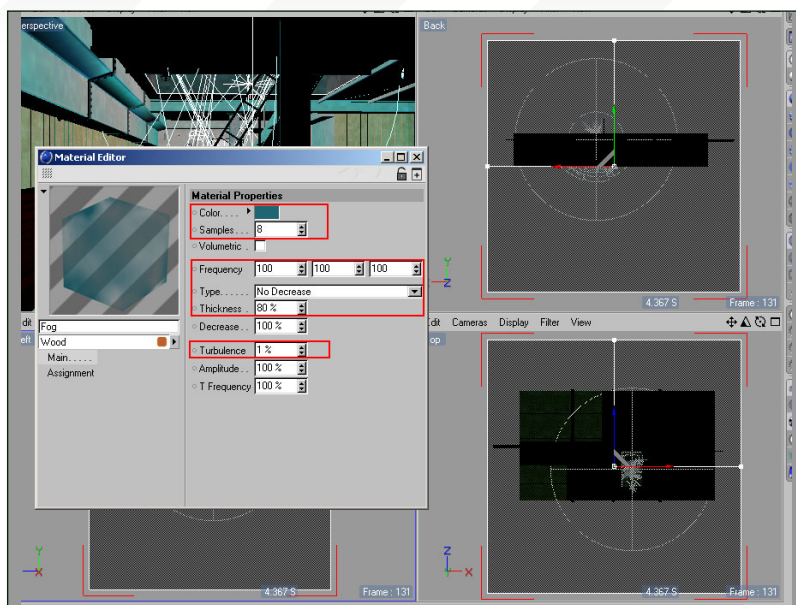


Fig 18

18. Open the Editor material of Fog. You can see from Fig18. that you can change the color and the Samples that define the quality of the fog, (the higher this number, the longer the calculation time). If the Volumetric options are disabled, the light sources will have no effect. With Volumetric enabled, all light sources will be taken into account. (Volumetric adds greatly to render time). Frequency defines the detail in the X,Y,Z directions. You can choose among three different types: Linear and Exponential decrease the fog intensity along the Y axis of the texture. No Decrease means constant fog density. The lower the Thickness value, the thinner the fog. Decrease controls the depth of the fog. Turbulence specifies the degree of swirl within the fog. Amplitude defines the average size of the rotating turbulence cells. T-Frequency controls the speed of the swirling fog (Fig 18).

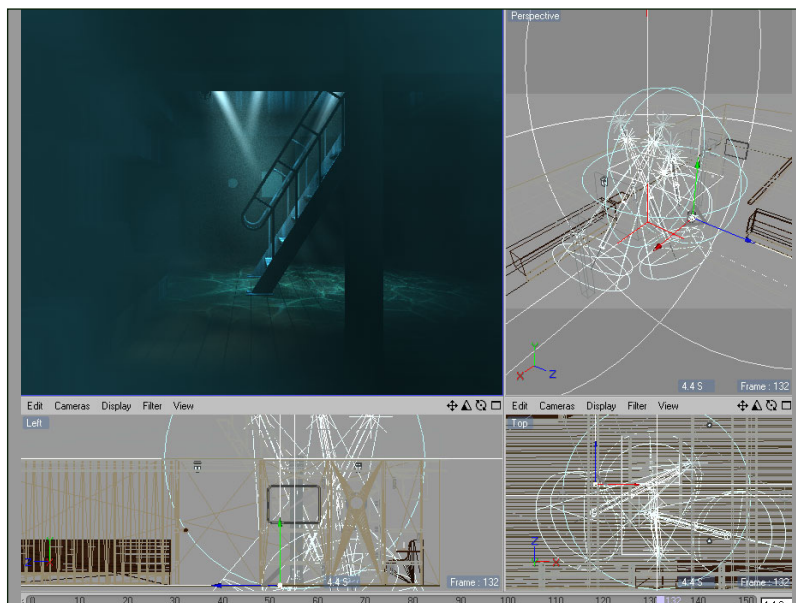
19. Modify the properties of the Fog material as seen in Fig19. The dimensions of the cube should cover the whole ship cabin.

Fig 19



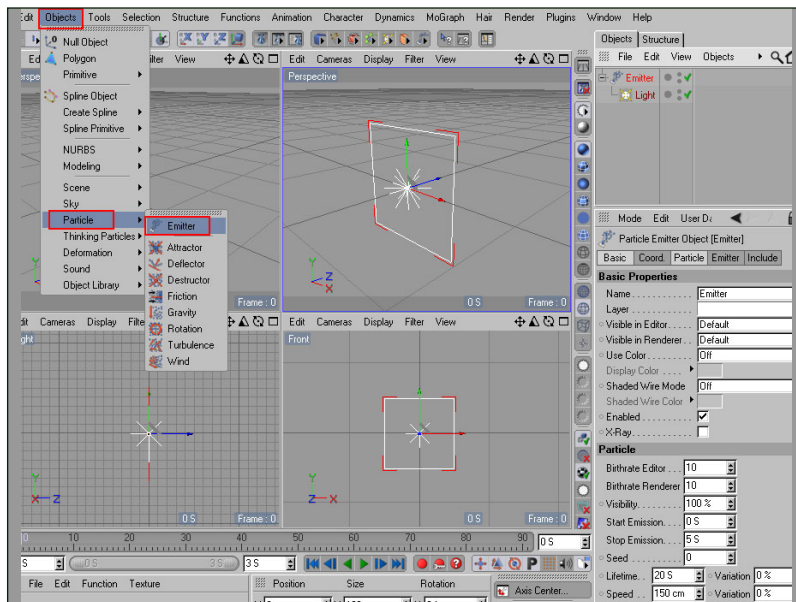
20. Make a render just to see how it's coming along.

Fig 20



21. Last thing to do is to add some particles floating as the render still looks very clean. I will use an Emitter with a light. So form the Objects menu, select Particle > Emitter. Then create a light and drag it into the Emitter object. Fig21.

Fig 21



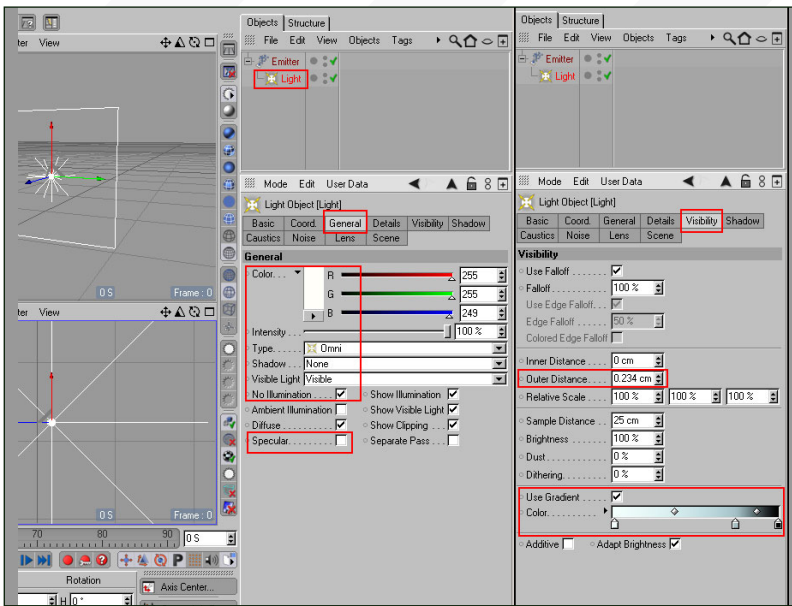


Fig 22

22. In the light properties, choose the Omni as type of the light, use the Visible light and check the No Illumination option. This light won't generate light. Uncheck the Specular option. In the Visibility control panel, decrease the Outer Distance; this light should be very small. Use the Gradient and change the colors as shown in Fig22.

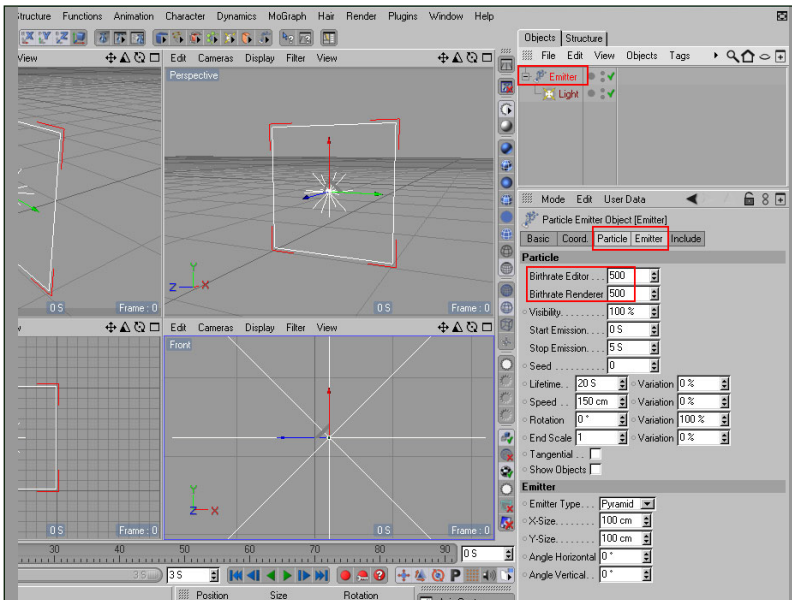


Fig 23

23. In the Emitter properties, increase the Birthrate as seen in Fig23. That means the number of the issued particles will be equal to the value that we set.

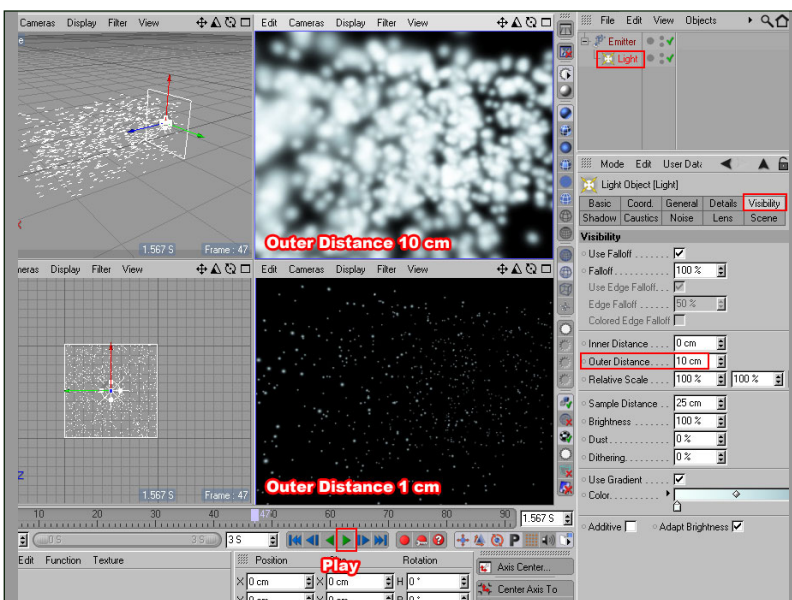
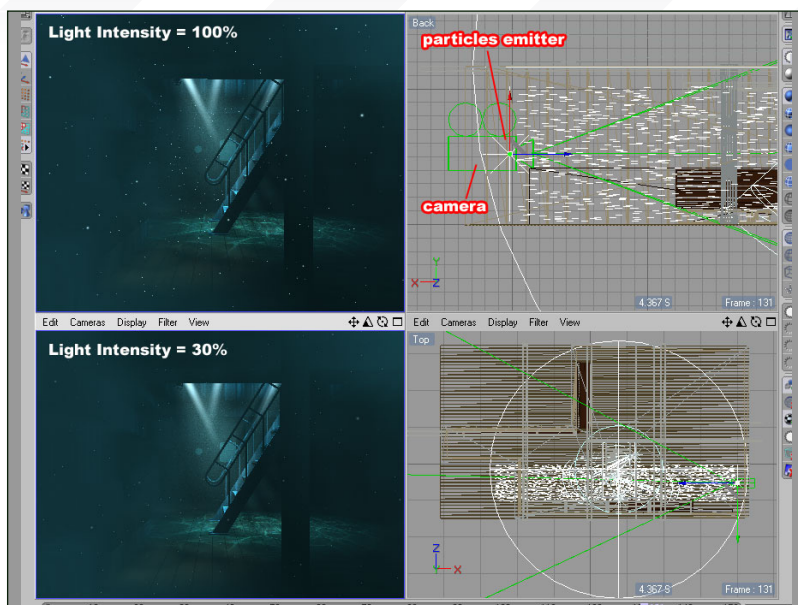


Fig 24

24. Click on Play; the emitter will start to generate the particles. In Fig24 you will notice two different results.

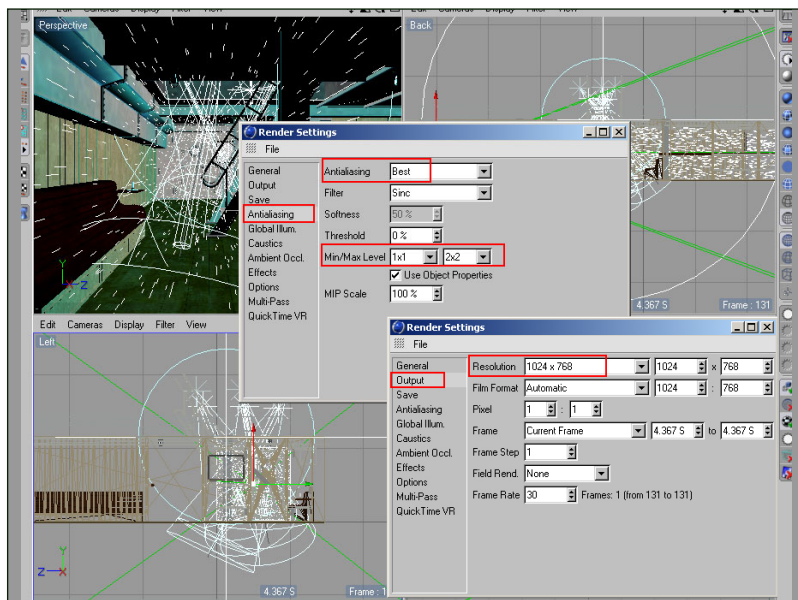
25. Position the Emitter to your liking. I chose to position the Emitter behind the camera as shown in Fig25. You may also decrease the Intensity of light as seen on the left. My settings for the light are the following: Outer Distance = 0.24; Intensity = 30%.

Fig 25



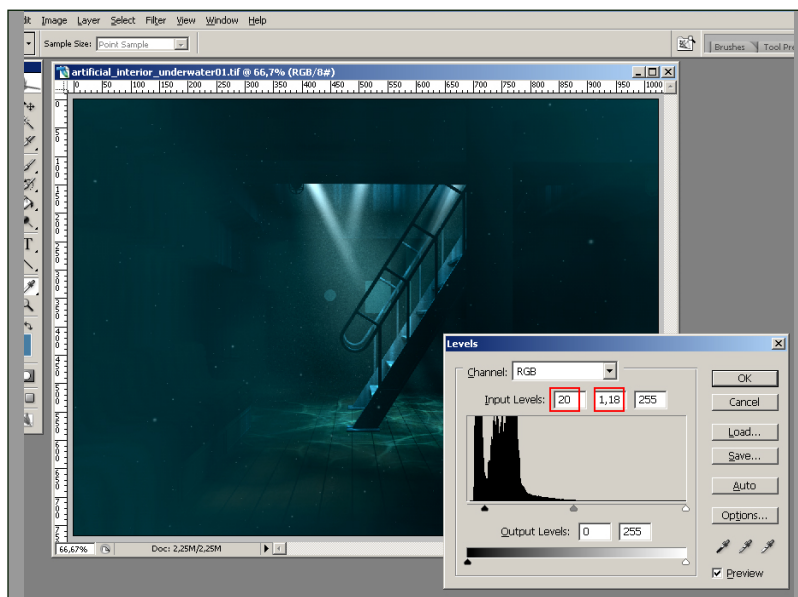
26. Well, I think we are ready for our final render. Open the Render Settings and enable the Antialiasing. Fig26. Choose a resolution for your render and then make the render in the Picture View.

Fig 26



27. Fig 27 shows the final render. The fog has homogenized the colors and our scene has lost a bit of contrast.

Fig 27



We can edit our image with Photoshop. We need just to add a bit of contrast, so open the Levels panel (you can find it in the Image > Adjustments > Levels) and modify the Input Levels as shown in Fig27.

That is all for this month and the series. I hope you had a good time in following the tutorial ...

Thanks to all who have followed this series of tutorials about environmental lighting.

3D ENVIRONMENT LIGHTING PART 6 - UNDERWATER

Originally Designed & Modelled by
RICHARD TILBURY

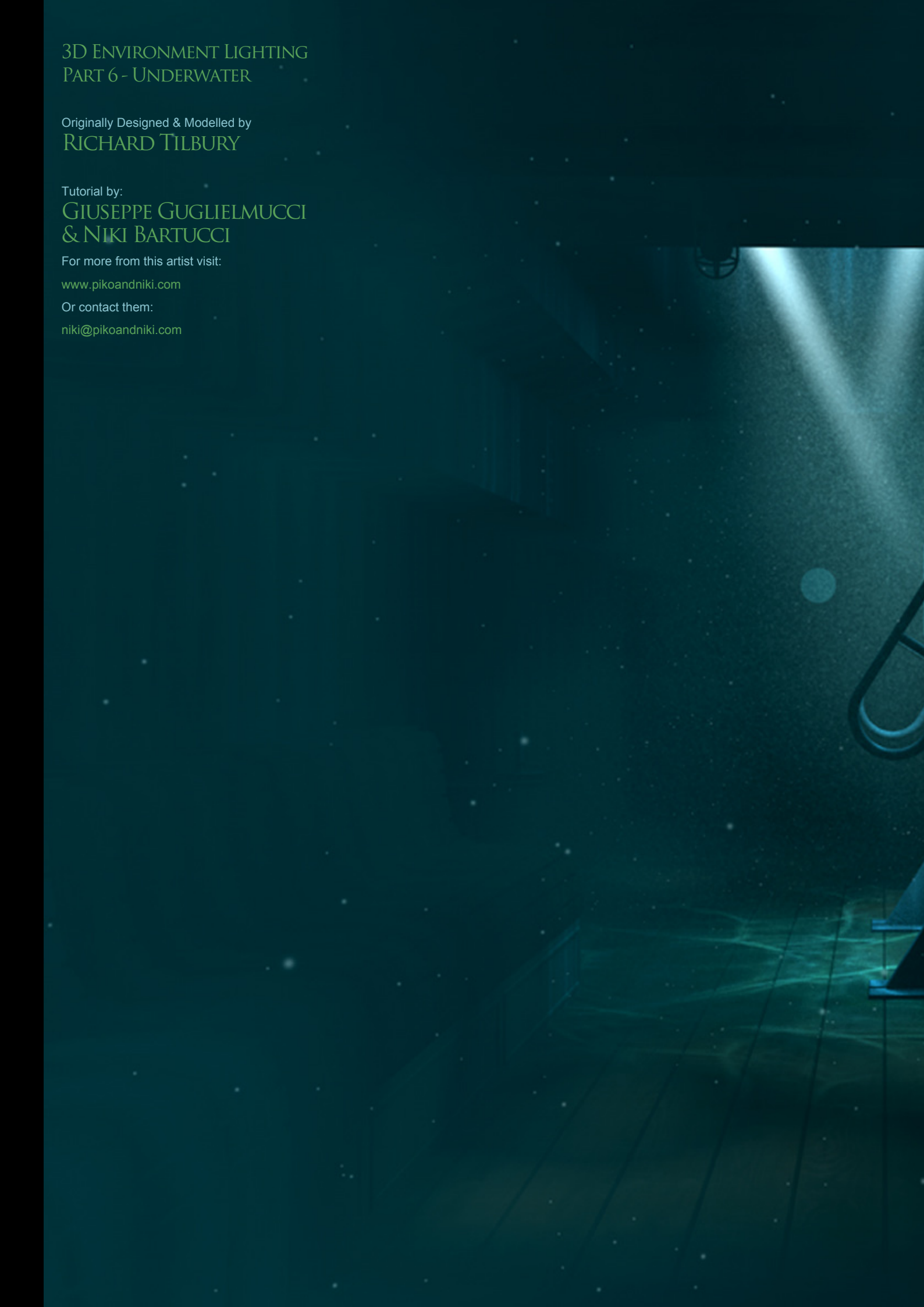
Tutorial by:
**GIUSEPPE GUGLIELMUCCI
& NIKI BARTUCCI**

For more from this artist visit:

www.pikoandniki.com

Or contact them:

niki@pikoandniki.com





3dtotal DVD training

Comprehensive training for 3dsmax

Introduction:

The aim of our training DVD's is to provide the artist with the most comprehensive set of lessons available. This is achieved by presenting the training material in the form of:

- step-by-step tuition.
- on-screen visual and audio instructions.
- ongoing forum support from the author.
- full-screen resolution flash movies.

All aspects of creating the finished projects are taught in a way that artist of all levels will be able to learn at their own pace. Once these techniques have been learnt, they can be equally applied to all your future modelling and texturing projects.



Welcome to

3dtotal DVD training

Modeling, Mapping & Texturing a Creature Head in 3ds Max & Photoshop

3DS MAX SERIES : v1

- Section 1: The Basics - Using the Interface.
- Section 2: Modelling - Head, Nose, Horns & the Eyes.
- Section 3: Mapping & Unwrapping.
- Section 4: Texturing - Painting Skin, Eyes & the Horns.
- Training by in-house 3D Artist Richard Tilbury.
- Over 3hrs 30mins of comprehensive training.
- Printable step by step PDF.
- Suitable for all levels of artist.



Welcome to

3dtotal DVD training

Modeling, Mapping & Texturing a Creature Head in Maya & Photoshop

MAYA SERIES : v1

- Section 1: The Basics - Using the Interface.
- Section 2: Modelling - Head, Nose, Horns & the Eyes.
- Section 3: Mapping & Unwrapping.
- Section 4: Texturing - Painting Skin, Eyes & the Horns.
- Training by Julian Sarmineto - Sony Picture Imageworks.
- Over 3hrs 30mins of comprehensive training.
- Printable step by step PDF.
- Suitable for all levels of artist.



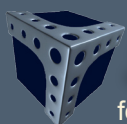
Welcome to

3dtotal DVD training

Creating a Fighter Ship in 3ds Max & Photoshop : Modeling, Mapping & Texturing

3DS MAX SERIES : v2

- Section 1: Modelling.
- Section 3: Mapping & Unwrapping.
- Section 4: Texturing.
- 8hrs 30mins of comprehensive training.
- Suitable for all levels of artist.



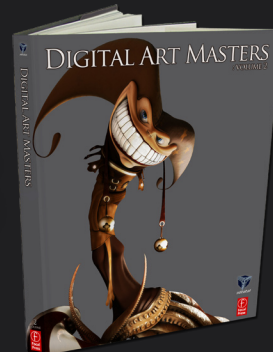
3dtotal.com

for more products in our range visit <http://www.3dtotal.com/shop>

AVAILABLE NOW!

DIGITAL ART MASTERS

: VOLUME 2



288 PAGE PREVIEW ONLINE!

AVAILABLE NOW ONLY!

UK - £32 USD - \$64 EUR - €49



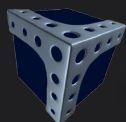
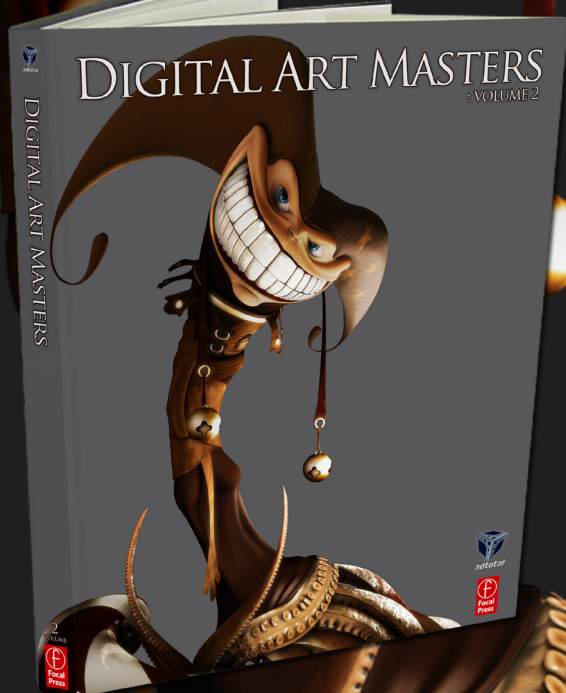
FEATURES 58 OF THE FINEST DIGITAL
2D AND 3D ARTISTS WORKING IN
THE INDUSTRY TODAY, FROM THE
LIKES OF:

PHILIP STRAUB
JONNY DUDDLE
ALESSANDRO BALDASSERONI
BENITA WINCKLER
FRED BASTIDE
JAMES BUSBY
MAREK DENCO
PATRICK BEAULIEU
JONATHAN SIMARD

BUY THE BOOK TO SEE JUST
HOW THEY CREATE THEIR
INCREDIBLE IMAGERY!

HARDBACK 21.6CM X 27.9CM IN SIZE

288 FULL COLOUR PREMIUM PAPER PAGES



3dtotal.com

for more products in our range visit <http://www.3dtotal.com/shop>

Eva Wild

Female Characters Creation

Introduction:

The 'Eva Wild Series' – Our aim in this series is to provide comprehensive lessons to produce a complete fully rigged, textured and anatomically correct female character. This series fits well into 3 DVDs with 3 separate professional 3ds Max instructors taking you through each of their specialties in very detailed step by step processes making this training suitable for artists of all levels.



Part 1 - Modelling:

- Complete step by step modelling of the Eva Wild character.
- Teaches the importance of studying human anatomy.
- Provides clear diagrams showing muscle flow and bone structure.
- 14 hours of comprehensive training.
- Suitable for artist of all levels.



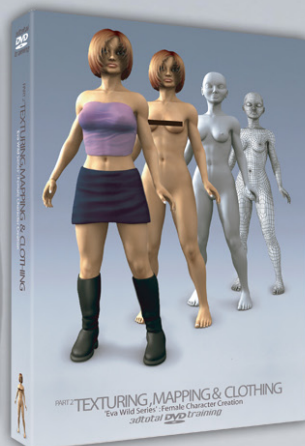
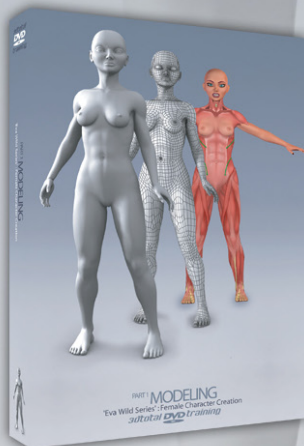
Part 2 - Texturing, Mapping & Clothing:

- Complete step by step texturing process of the Eva Wild character.
- Modelling and Texturing of Eva Wild garments.
- Lighting the character.
- 4 hours and 47 mins of comprehensive training.
- Suitable for artist of all levels.



Part 3 - Rigging & Animation

- Complete step by step of setting up a fully animatable rig for the Eva Wild character.
- Creating a walk Cycle.
- Creating a simple face morph.
- 7 hours and 43 mins of comprehensive training.
- Suitable for artist of all levels.



3dtotal.com

for more products in our range visit <http://www.3dtotal.com/shop>

JOAN of ARC

complete character creation

Downloadable Tutorial EBook



SOFTIMAGE | XSI

These 120 plus page, Downloadable PDF's are designed for ease of use to help beginners and intermediate level of artist alike in the creation of a female character. The tutorial takes you through the process of modelling, texturing and mapping to finally adding bones.

Chapter 1: Modeling of the Body

- Body

Chapter 2: Modeling of the Head

- Head, Ear & Assembly

Chapter 3: Modeling of the Accessories

- The Sword & Armour Legs

Chapter 4: Modeling of the Accessories

- Armour Bust, Hair & Glove

Chapter 5: Modeling of the Accessories

- Accessories & UVW Mapping

Chapter 6: UVW Mapping

- Sword, Clothing, Armour & Body

Chapter 7: Texturing & Hair

- Eyes, Skin & Hair

Chapter 8: Bones & Skinning

- Bases, Hierarchy & Skinning

Introduction:
Michel Roger's famous 'Joan of Arc' tutorial re-written for Maya by Taylor Kingston, Cinema 4D by Giuseppe Guglielmucci & Nikki Bartucci, Lightwave by Vojislav Milanovich and Softimage by Luciano Iurino and 3DCreative Magazine.com.

If there has been one single tutorial that has educated and inspired more budding 3d artists than anything else, this complete step by step project by Michel's must be it. The community is in debt to him.



3dtotal.com

for more products in our range visit <http://www.3dtotal.com/shop>

the shorts drawer

Introduction:

A Collection of the finest independent animated movies and commercial trailers. The DVD includes work from a whole number of different sources, such as students, independents animators and commercial studios. We want people to be able to view this wealth of elite animation in one convenient high resolution package whilst generating much exposure for these talented artists at the same time.



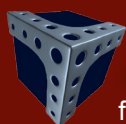
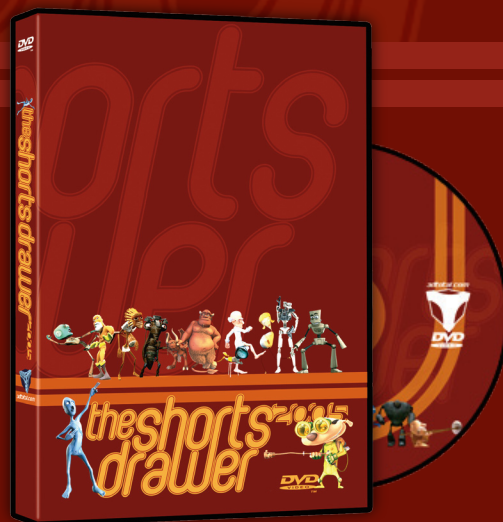
the shorts drawer 2004

- Running Time: 3hrs 8 mins
- 27 Shorts movies
- 6 Clips & Trailers
- Region Free, NTSC & PAL versions
- Shorts & trailers from artist and studio like:
 - Blur Studios
 - Brian Taylor
 - Marco Spitoni
 - Patrick Beaulieu
 - & Alex Mateo



the shorts drawer 2005

- Running Time: 3hrs 8 mins
- 27 Shorts movies
- 3 Trailers
- Region Free, NTSC & PAL versions
- Shorts & trailers from studios such as:
 - Blur Studios
 - Keytoon Animations Studios
 - Redrover Studios
 - & Platige Image
- Loads of extra including images and storyboards



3dtotal.com

for more products in our range visit <http://www.3dtotal.com/shop>



SOFTIMAGE|XSI

low poly game character

Downloadable Tutorial EBook

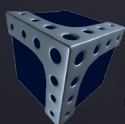
Introduction:

The original character of the Swordmaster was created by Seong-wha Jeong and we had 3DTotal's in-house 3d artist Richard Tilbury, re-create the character in 3dsmax as well as create the textures in Photoshop, in our new precise, step-by-step tutorial for highly polished, low polygon game character with detailed texturing for real-time rendering. We have also converted the tutorials into Cinema 4D, Maya, Lightwave and Softimage platforms. Even if you are not a user of one of them, the principles should be easily followed in nearly all other 3D applications.

The Swordmaster tutorials is spread over 8 Chapters which outline, in detail, the process for creating the Swordmaster below are the details.



- Chapter 1: Modelling the Head
- Chapter 2: Modelling the Torso
- Chapter 3: Modelling the Arms & Legs
- Chapter 4: Modelling the Clothing & Hair
- Chapter 5: Modelling the Armour
- Chapter 6: Mapping & Unwrapping
- Chapter 7: Texturing the Skin & Body
- Chapter 8: Texturing the Armour & Clothing



3dtotal.com

for more products in our range visit <http://www.3dtotal.com/shop>

the brand new totalTextures

v1 6: Architectural Showroom Textures

Our NEW Total Texture collection is full of great Showroom Textures for really finishing those Architectural renders to the highest standards with as little effort as possible. As with all Total Texture Collections, the NEW DVD now contains 134 Texture Maps comprising of over 545 individual, hand crafted texture maps which are all fully tileable. Each texture has been hand crafted from 100% original photography, made seamless where required, and each having their own unique bump & specular map included. Each texture is also of course totally flexible and can be used in many projects - architectural or otherwise.

Here is the DVD's full contents:-

- 134 - Colour Texture Maps
- 134 - Matching Bump Maps
- 134 - Matching Specular Maps

Split up into the following categories:

- 36 Fabrics & Upholstrey Textures
- 7 Marble Textures
- 3 Rugs
- 15 Stone Textures
- 25 Tile Textures
- 23 Wall Textures
- 21 Wood Textures
- 4 Misc Textures



16 Collections of amazing Textures

for full information and pricing including discounts of up to 25% visit www.3dtotal.com